

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

SEQUENCE LISTING

<110> FRASER JR., MALCOLM J.
LI, XU
BEAM, TERESA

<120> METHODS AND COMPOSITIONS FOR TRANSPOSITION USING
MINIMAL SEGMENTS OF THE EUKARYOTIC TRANSFORMATION
VECTOR PIGGYBAC

<130> 835910-92098

<140> 10/001,189
<141> 2001-10-30

<150> 60/244,984
<151> 2000-11-01

<150> 60/244,677
<151> 2000-10-31

<160> 70

<170> PatentIn Ver. 2.1

<210> 1
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 1
ggatcccatg cgtcaatttt acgca 25

<210> 2
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 2
acgactagtg ttcccacaat ggттаattcg 30

<210> 3
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 3
acgactagtg ccgtacgcgt atcgataagc 30

<210> 4
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 4
gcttgataag aagag 15

<210> 5
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 5
gcatgttgct tgctatt 17

<210> 6
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 6
acgtaagctt cgatgtcttt gtgatgcgcc 30

<210> 7
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 7
acggaattca cttgcaactg aaacaatatc c 31

<210> 8
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 8
actctcgagg ttcccacaat ggtaattcg 30

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 9
actgaattca tggtagcgac cggtaggatcg 30

<210> 10
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 10
ggatcctcta gattaacct agaaagata 29

<210> 11
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 11
gaaagggcc gtgatacgcc tatttttata ggta 34

<210> 12
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 12
aatcggtagc aacgcgcggg gagaggcggt ttgcg 35

<210> 13
<211> 33
<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 13

ccaagggccc tgacgtgaac cattgtcaca cgt

33

<210> 14

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 14

tgtgggtacc gtcgatcaaa caaacgcgag ataccg

36

<210> 15

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 15

cgtcaatttt acgcagacta tctttctagg g

31

<210> 16

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 16

ttaaccctag aaagatagtc tgcgtaaaat tgacgcacg

39

<210> 17

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 17

gtacgtcaca atatgattat ctttctaggg

30

<210> 18
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 18
 ttaaccctag aaagataatc atattgtgac

30

<210> 19
 <211> 43
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 19
 ttaattaacc ctagaaagat agtctgcgta aaattgacgc atg

43

<210> 20
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 20
 ttaattaacc ctagaaagat aatcatattg tgac

34

<210> 21
 <211> 46
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 oligonucleotide

<400> 21
 ctagtactag tgcgccgcgt acgtctagag acgcgcagtc tagaad

46

<210> 22
 <211> 46
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 22
ttctagactg cgcgtctcta gacgtacgcg ggcactagt actagd 46

<210> 23
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 23
gatgacctgc agtaggaaga cgd 23

<210> 24
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 24
gactctagac gtacgcggag cttaacccta gaaagatad 39

<210> 25
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
oligonucleotide

<400> 25
ggattccatg cgtcaatttt acgcad 26

<210> 26
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 26
ggatcctcga tatacagacc gataaaaaca catgd 35

<210> 27
<211> 35

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 27
ggtaccattg caaacagcga cggattcgcg ctatd 35

<210> 28
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 28
acgcgtagat cttaatacga ctactatag gg 32

<210> 29
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 29
acgcgtagat ctaattaacc ctactaaag gg 32

<210> 30
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 30
cctcgatata cagaccgata aaacacatg 29

<210> 31
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 31
gcacgcctca gccgagctcc aaggcgac 29

<210> 32
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 32
 ggatccctca aaatttcttc taaagta

27

<210> 33
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 33
 ggatccctca aaatttcttc taaagta

27

<210> 34
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primer

<400> 34
 gcacgcctca gccgagctcc aagcggcgac

30

<210> 35
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Plasmid
 insertion sequence

<400> 35
 ttaatctaga ggatcctcta gattaa

26

<210> 36
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Plasmid
 insertion sequence

<400> 36
ttaatctaga cgtacgcgga gcttaa 26

<210> 37
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Plasmid
insertion sequence

<400> 37
ttaatctagc tagtactaga actagattaa 30

<210> 38
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Plasmid
insertion sequence

<400> 38
ttaatctagt tctagacgta cgcggcgcac tagtactagc tagattaa 48

<210> 39
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Plasmid
insertion sequence

<400> 39
ttaatctagt tctagactgc gcgtctctag acgtacgcgg cgcactagta ctagctagat 60
taa 63

<210> 40
<211> 707
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: ITR Cartridge
sequence

<400> 40
ggatcccatg cgtcaatctt acgcagacta tctttctagg gttaatctag ctgcatcagg 60
atcatatcgt cgggtctttt ttccggtctca gtcacgcgcc aagctggcgc tatctgggca 120
tcggggagga agaagcccgt gccttttccc gcgaggttga agcggcatgg aaagagtttg 180
ccgaggatga ctgctgctgc attgacgttg agcgaaaacg cacgtttacc atgatgattc 240

gggaaggtgt	ggccatgcac	gcctttaacg	gtgaactgtt	cggtcaggcc	acctgggata	300
ccagttcgtc	gcggcttttc	cggacacagt	tccgatgggt	cagcccgaag	cgcacagca	360
acccgaacaa	taccggcgac	agccggaact	gccgtgccgg	tgtgcagatt	aatgacagcg	420
gtgcccgcgt	gggatattac	gtcagcgagg	acgggtatcc	tggctggatg	ccgcagaaat	480
ggacatggat	accccgtag	ttaccggcg	ggcgcgcctc	gttcattcac	gtttttgaac	540
ccgtggagga	cgggcagact	cgcgggtgcaa	atgtgtttta	cagcgtgatg	gagcagatga	600
agatgctcga	cacgctgcag	aacacgcagc	tagattaacc	ctagaaagat	aatcatattg	660
tgacgtacgt	taaagataat	catgcgtaaa	attgacgcac	gggatcc		707

<210> 41

<211> 3662

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pXL-Bac
sequence

<400> 41

ctaaattgta	agcgttaata	ttttgttaaa	attcgcgtta	aatttttgtt	aaatcagctc	60
attttttaac	caataggccg	aaatcggcaa	aatcccttat	aaatcaaaag	aatagaccga	120
gatagggttg	agtgttggtc	cagtttgga	caagagtcca	ctattaaaga	acgtggactc	180
caacgtcaaa	gggcgaaaaa	ccgtctatca	gggcgatggc	ccactacgtg	aaccatcacc	240
ctaatacaagt	tttttggggg	cgaggtgccc	taaagcacta	aatcgggaacc	ctaaagggag	300
cccccgattt	agagcttgac	ggggaaaagcc	ggcgaaactg	gcgagaaaag	aagggaaagaa	360
agcgaaaagga	gcgggcgcta	gggcgctggc	aagtgtagcg	gtcacgctgc	gcgtaaccac	420
cacacccgcc	gcgcttaatg	cgcgcgtaca	gggcgcgtcc	cattcgccat	tcaggctgcg	480
caactgttgg	gaagggcgat	cgggtgcgggc	ctcttcgcta	ttacgccagc	tggcgaaaag	540
gggatgtgct	gcaaggcgat	taagttgggt	aacgccaggg	ttttcccagt	cacgacgttg	600
taaaacgcag	gccagtgage	gcgcctcggt	cattcacgtt	tttgaacccg	tggaggacgg	660
gcagactcgc	ggtgcaaatg	tgttttacag	cgtgatggag	cagatgaaga	tgctcgacac	720
gctgcagaac	acgcagctag	attaacccta	gaaagataat	catattgtga	cgtacgttaa	780
agataatcat	gcgtaaaatt	gacgcagtgg	atctgtaata	cgactcacta	tagggcgaat	840
tgggtaccgg	gccccccctc	gaggtcgacg	gtatcgataa	gcttgatata	gaattcctgc	900
agcccggggg	atccactagt	tctagagcgg	ccgccaccgc	gggtggagctc	cagcttttgt	960
tccctttagt	gagggttaat	tagatccccat	gcgtcaattt	tacgcagact	atcttttctag	1020
gggttaatcta	gctgcatcag	gatcatatcg	tcgggtcttt	tttcggctc	agtcacgcgc	1080
caagctggcg	ctatctgggc	atcggggagg	aagaagcccg	tgccctttcc	cgcgaggttg	1140
aagcggcatg	gaaagagtgt	gccgaggatg	actgctgctg	cattgacgtt	gagcgaatac	1200
gcacgtttac	catgatgatt	cgggaagggtg	tggccatgca	cgcctttaac	ggtgaactgt	1260
tcgttcaggc	cacctgggat	accagttcgt	cgcggttttt	ccggacacag	ttccggatgg	1320
tcagcccga	gcgcacagc	aaccgaaca	ataccggcga	cagccggaac	tgccgtgccg	1380
gtgtgcagat	taatgacagc	ggtgcggcgc	cgtcagcgag	gacgggtatc	gacgggtatc	1440
ctggctggat	gccgcagaaa	tggacatgga	taccccgatg	gttaccgggc	gggcgcgctt	1500
ggcgtaataca	tggtcatagc	tgtttcctgt	gtgaaattgt	tatccgctca	caattccaca	1560
caacatacga	gccggaagca	ttaaagtgtaa	agcctggggg	gcctaattgag	tgagctaact	1620
cacattaatt	gcgttgccgt	cactgcccgc	tttccagctc	ggaaacctgt	cgtgccagct	1680
gcattaatga	atcgcccaac	gcgcggggag	agggcggttg	cgtattgggc	gctcttccgc	1740
ttcctcgctc	actgactcgc	tgcgctcggt	cgttcggctg	cggcgagcgg	tatcagctca	1800
ctcaaaggcg	gtaatacggg	tatccacaga	atcaggggat	aacgcaggaa	agaacatgtg	1860
agcaaaaagg	cagcaaaaag	ccaggaaccg	taaaaaggcc	gcgttgctgg	cgtttttcca	1920
taggtccgcg	ccccctgacg	agcatcacaa	aaatcgacgc	tcaagtcaga	ggtggcgaaa	1980
ccgcacagga	ctataaagat	accaggcggt	tccccctgga	agctccctcg	tgcgctctcc	2040
tgttccgacc	ctgcgcgtta	ccggataacct	gtccgccttt	ctcccttcgg	gaagcgtggc	2100
gctttctcat	agctcacgct	gtaggtatct	cagttcggtg	taggtcggtc	gctccaagct	2160
gggctgtgtg	cacgaacccc	ccgttcagcc	cgaccgctgc	gccttatccg	gtaactatcg	2220
tcttgagtc	aaccgggtaa	gacacgactt	atcgccactg	gcagcagcca	ctggtaacag	2280

gatttagcaga	gcgaggtatg	taggcggtgc	tacagagttc	ttgaagtgg	ggcctaacta	2340
cggctacact	agaaggacag	tatttggtat	ctgcgctctg	ctgaagccag	ttaccttcg	2400
aaaaagagtt	ggtagctctt	gatccggcaa	acaaaccacc	gctggtagcg	gtgggttttt	2460
tgtttgcaag	cagcagatta	cgcgcagaaa	aaaaggatct	caagaagatc	ctttgatctt	2520
ttctacgggg	tctgacgctc	agtggaacga	aaactcacgt	taagggattt	tgggtcatgag	2580
attatcaaaa	aggatcttca	cctagatcct	tttaaattaa	aaatgaagtt	ttaaatcaat	2640
ctaaagtata	tatgagtaaa	cttgggtctga	cagttaccaa	tgcttaatca	gtgaggcacc	2700
tatctcagcg	atctgtctat	ttcgttcctc	catagttgcc	tgactccccg	tcgtgtagat	2760
aactacgata	cgggaggggt	taccatctgg	ccccagtgtc	gcaatgatac	cgcgagaccc	2820
acgctcaccg	gctccagatt	tatcagcaat	aaaccagcca	gccggaagg	ccgagcgcag	2880
aagtggctct	gcaactttat	ccgcctccat	ccagtctatt	aattgttgcc	gggaagctag	2940
agtaagtagt	tcgcccagtt	atagtttgcg	caacgttggt	gccattgcta	caggcatcgt	3000
ggtgtcacgc	tcgtcgtttg	gtatggcttc	attcagctcc	ggttcccaac	gatcaaggcg	3060
agttacatga	cccccatgt	tgtgcaaaaa	agcggttagc	tccttcgggtc	ctccgatcgt	3120
tgtcagaagt	aagttggcgc	cagtgttatc	actcatgggt	atggcagcac	tgcataattc	3180
tcctactgtc	atgccatccg	taagatgctt	ttctgtgact	ggtgagtact	caaccaagtc	3240
attctgagaa	tagtgtatgc	ggcgaccgag	ttgctcttgc	ccggcgctcaa	tacgggataa	3300
taccgcgcca	catagcagaa	ctttaaaagt	gctcatcatt	ggaaaacgtt	cttcggggcg	3360
aaaactctca	aggatcttac	cgctgttgag	atccagttcg	atgtaaccca	ctcgtgcacc	3420
caactgatct	tcagcatctt	ttactttcac	cagcgtttct	gggtgagcaa	aaacaggaag	3480
gcaaaatgcc	gcaaaaaagg	gaataagggc	gacacggaaa	tgttgaatac	tcatactctt	3540
cctttttcaa	tattattgaa	gcatttatca	gggttattgt	ctcatgagcg	gatacatatt	3600
tgaatgtatt	tagaaaaata	aacaaatagg	ggttcgcgcg	acatttcccc	gaaaagtgcc	3660
ac						3662

<210> 42

<211> 5533

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pBSII-hs-orf sequence

<400> 42

ctaaattgta	agcgttaata	ttttgttaaa	attcgcgtta	aatttttgg	aaatcagctc	60
atTTTTTaa	caataggccg	aaatcggcaa	aatcccttat	aaatcaaaag	aatagaccga	120
gataggggtg	agtgttggtc	cagtttgga	caagagttcca	ctattaaaga	acgtggactc	180
caacgtcaaa	gggcgaaaaa	ccgtctatca	gggcgatggc	ccactacgtg	aaccatcacc	240
ctaatacagt	tttttggggt	cgagggtgcc	taaagcacta	aatcggaacc	ctaaagggag	300
cccccgattt	agagcttgac	ggggaaaagg	ggcgaaacgtg	gcgagaaagg	aaggggaagaa	360
agcgaaaagg	gcgggcgcta	ggcgctggc	aagtgtagcg	gtcacgctgc	gcgtaaccac	420
cacacccgcc	gcgcttaatg	cgccgctaca	gggcgcgtcc	cattcgccat	tcaggctgcg	480
caactgttgg	gaagggcgat	cggtgcgggc	ctcttcgcta	ttacgccagc	tggcgaaagg	540
gggatgtgct	gcaaggcgat	taagtgggt	aacgccagg	ttttcccagt	cacgacgttg	600
taaaacgacg	gccagtgcgc	gcgcgtaata	cgactcacta	tagggcgaa	tgggtaccgg	660
gccccccctc	gaggtcgacg	gtatcgataa	gctatccagt	gcagtaaaaa	ataaaaaaaa	720
aatatgtttt	tttaaatcta	cattctccaa	aaaagggttt	tattaactta	catacatact	780
agaattgatc	cccgatcccc	ctagaatccc	aaaacaaact	ggttattgtg	gtaggtcatt	840
tgtttggcag	aagaaaaact	gagaaatttc	tctggccggt	attcggttatt	ctctcttttc	900
tttttggttc	tcctctctctg	cactaatgct	ctctcactct	gtcacacagt	aaacggcata	960
ctgctctcgt	tggttcgaga	gagcgcgcct	cgaatgttcg	cgaaaagagc	gccggagtat	1020
aaatagagcg	cttcgtctac	ggagcgacaa	ttcaattcaa	acaagcaaag	tgaacacgtc	1080
gctaagcgaa	agctaagcaa	ataaacaagc	gcagctgaac	aagctaataa	atctgcagta	1140
aagtgcaggt	taaagtgaat	caattaaaag	taaccagcaa	ccaagtaaat	caactgcaac	1200
tactgaaatc	tgccaagaag	taattattga	atacaagaag	agaactctga	atagggaatt	1260
gggaattcct	gcagcccggg	ggatcctata	taataaaatg	ggtagttctt	tagacgatga	1320

gcataatcctc	tctgctcttc	tgcaaagcga	tgacgagctt	gttggtgagg	attctgacag	1380
tgaaatatca	gatcacgtaa	gtgaagatga	cgtccagagc	gatacagaag	aagcgtttat	1440
agatgaggta	catgaagtgc	agccaacgtc	aagcggtagt	gaaatattag	acgaacaaaa	1500
tgttattgaa	caaccagggt	cttcattggc	ttctaacaga	atcttgacct	tgccacagag	1560
gactattaga	ggtaagaata	aacattgttg	gtcaacttca	aagtccacga	ggcgtagccg	1620
agtctctgca	ctgaacattg	tcagatctca	aagaggtccg	acgcgtatgt	gccgcaatat	1680
atatgaccca	cttttatgct	tcaaactatt	ttttactgat	gagataattt	cggaaattgt	1740
aaaatggaca	aatgctgaga	tatcattgaa	acgtcgggaa	tctatgacag	gtgctacatt	1800
tcgtgacacg	aatgaagatg	aaatctatgc	tttctttggg	attctggtaa	tgacagcagt	1860
gagaaaagat	aaccacatgt	ccacagatga	cctctttgat	cgatctttgt	caatgggtga	1920
cgtctctgta	atgagtcgtg	atcgttttga	ttttttgata	cgatgtctta	gaatggatga	1980
caaaagtata	cggcccacac	ttcgagaaaa	cgatgtattt	actcctgtta	gaaaaatatg	2040
ggatctcttt	atccatcagt	gcatacaaaa	ttacactcca	ggggctcatt	tgaccataga	2100
tgaaacagtta	cttggttttta	gaggacggtg	tccgtttagg	atgtatatcc	caaacaagcc	2160
aagtaagtat	ggaataaaaa	tcctcatgat	gtgtgacagt	ggtacgaagt	atatgataaa	2220
tggaatgcct	tatttgggaa	gaggaacaca	gaccaacgga	gtaccactcg	gtgaatacta	2280
cgtgaaggag	ttatcaaagc	ctgtgcacgg	tagttgtcgt	aatattacgt	gtgacaattg	2340
gttcacctca	atcccttttg	caaaaaactt	actacaagaa	cgtataaagt	taaccattgt	2400
gggaaccgtg	cgatcaaaca	aacgcgagat	accggaagta	ctgaaaaaca	gtcgcctccag	2460
gccagtggga	acatcgatgt	tttgttttga	cggacccttt	actctcgtct	catataaacc	2520
gaagccagct	aagatgggat	acttattatc	atcttgtgat	gaggatgctt	ctatcaacga	2580
aagtaccggt	aaaccgcaaa	tggttatgta	ttataatcaa	actaaaggcg	gagtggaacac	2640
gctagaccaa	atgtgttctg	tgatgacctg	cagtaggaag	acgaataggt	ggcctatggc	2700
attattgtac	ggaatgataa	acattgcctg	cataaattct	tttattatat	acagccataa	2760
tgtcagtagc	aagggagaaa	aggttcaaag	tcgcaaaaaa	tttatgagaa	acctttacat	2820
gagcctgacg	tcategttta	tgcgtaagcg	tttagaagct	cctactttga	agagataatt	2880
gcgcgataat	atctctaata	ttttgccaaa	tgaagtgcct	ggtacatcag	atgacagtac	2940
tgaagagcca	gtaatgaaaa	aacgtactta	ctgtacttac	tgccccctta	aaataaggcg	3000
aaaggcaaat	gcategtgca	aaaaatgcaa	aaaagttatt	tgtcgagagc	ataatattga	3060
tatgtgccaa	agttgtttct	gactgactaa	taagtataat	ttgtttctat	tatgtataag	3120
ttaagctaatt	tacttatttt	ataatacaac	atgactgttt	ttaaagtaca	aaataagttt	3180
atttttgtaa	aagagagaa	gtttaaaaag	tttgttactt	tagaagaaat	tttgagtttt	3240
tgtttttttt	taataaataa	ataaacataa	ataaattgtt	tggtgaattt	ggatccacta	3300
gttctagagc	ggccgccacc	gcggtggagc	tcagcttttt	gttcccttta	gtgaggggta	3360
attgcgcgct	tgccgtaatc	atgggtcatag	ctgtttctctg	tgtagaaattg	ttatccgctc	3420
acaattccac	acaacatacg	agccggaagc	ataaagtgtg	aagcctgggg	tgccctaatga	3480
gtgagctaac	tcacattaat	tgcggttgccg	tcactgcccg	ctttccagtc	gggaaacctg	3540
tcgtgccagc	tgcattaatg	aatcggccaa	cgccgccccg	gaggcggttt	gcgtattggg	3600
cgctcttccg	cttccctcgt	cactgactcg	ctgcgctcgg	tcggtccggt	gcggcgagcg	3660
gtatcagctc	actcaaaggc	ggtaatacgg	ttatccacag	aatcagggga	taacgcagga	3720
aagaacatgt	gagcaaaagg	ccagcaaaaag	gccaggaacc	gtaaaaaggc	cgcggttgctg	3780
gcgtttttcc	ataggctccg	cccccttgac	gagcatcaca	aaaatcgacg	ctcaagtcag	3840
aggtggcgaa	acccgacagg	actataaaga	taccaggcgt	ttccccctgg	aagctccctc	3900
gtgcgctctc	ctgttccgac	cctgcgcgtt	accggatacc	tgteccgectt	tctcccttcg	3960
ggaagcgtgg	cgctttctca	tagctcacgc	tgtaggatcc	tcagttcggg	gtaggtcggt	4020
cgctccaagc	tggtgtgtgt	gcacgaaccc	cccgttcagc	ccgaccgctg	cgcttatcc	4080
ggttaactatc	gtcttgagtc	caacccggta	agacacgaat	tatcgccact	ggcagcagcc	4140
actggtaaca	ggattagcag	agcgagggtat	gtaggcggtg	ctacagagtt	cttgaagtgg	4200
tggcctaact	acggctacac	tagaaggaca	gtatttggta	tctgcgctct	gctgaagcca	4260
gttaccttcg	gaaaaagagt	tggttagctct	tgctccggca	aacaaaccac	cgctggtagc	4320
ggtggttttt	ttgtttgcaa	gcagcagatt	acgcgcagaa	aaaaaggatc	tcaagaagat	4380
cctttgatct	tttctacggg	gtctgacgct	cagtggaaacg	aaaactcacg	ttaagggatt	4440
ttggtcatga	gattatcaaa	aaggatcttc	acctagatcc	ttttaaatta	aaaatgaagt	4500
tttaaatcaa	tctaaagtat	atatgagtaa	acttgggtctg	acagttacca	atgcttaatc	4560
agtgaggcac	ctatctcagc	gatctgtcta	tttcggttcac	ccatagttgc	ctgactcccc	4620
gtcgtgtaga	taactacgat	acggggagggc	ttaccatctg	gccccagtcg	tgcaatgata	4680
ccgcgagacc	cacgctcacc	ggctccagat	ttatcagcaa	taaaccagcc	agccggaagg	4740
gccgagcgca	gaagtgggtcc	tgcaacttta	tccgcctcca	tccagtctat	taattgttgc	4800

```

cggaagccta gagtaagtag ttccgaggtt aatagtttgc gcaacgttgt tgccattgct 4860
acaggcatcg tgggtgtcacg ctccgtcggtt ggtatggcctt cattcagctc cgggttcccaa 4920
cgatcaaggc gagttacatg atcccccatg ttgtgcaaaa aagcgggttag ctcccttcggt 4980
cctccgatcg ttgtcagaag taagttggcc gcagtggtat cactcatggt tatggcagca 5040
ctgcataatt ctcttactgt catgccatcc gtaagatgct tttctgtgac tgggtgagtag 5100
tcaaccaagt cattctgaga atagtgtatg cggcgaccga gttgctcttg cccggcgctca 5160
atacgggata ataccgcgcc acatagcaga actttaaaag tgctcatcat tggaaaacgt 5220
tcttcggggc gaaaactctc aaggatctta ccgctgttga gatccagttc gatgtaaccc 5280
actcgtgcac ccaactgatc ttcagcatct tttactttca ccagcgtttc tgggtgagca 5340
aaaacaggaa ggcaaaatgc cgcaaaaaag ggaataaggg cgacacggaa atgttgaata 5400
ctcactactc tcctttttca atattattga agcatttatc agggttattg tctcatgagc 5460
ggatacatat ttgaatgtat ttagaaaaat aaacaaatag gggttccgcg cacatttccc 5520
cgaaaagtgc cac
5533

```

<210> 43

<211> 4971

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pBSII-IFP2-orf
sequence

<400> 43

```

ctaaattgta agcggttaata ttttgttaaa attcgcgtta aatttttgtt aaatcagctc 60
atTTTTtaac caataggccg aaatcggcaa aatcccttat aaatcaaaaag aatagaccga 120
gatagggttg agtggtgttc cagtttgga caagagtcca ctattaaaga acgtggactc 180
caacgtcaaa gggcgaaaaa ccgtctatca gggcgatggc ccactacgtg aaccatcacc 240
ctaatacagt ttttgggggt cgaggtgccc taaagcacta aatcggaacc ctaaaaggag 300
ccccgatTT agagcttgac ggggaaagcc ggcgaacgtg gcgagaaagg aagggaagaa 360
agcgaaaagg ggcggcgcta gggcgctggc aagtgtagcg gtcacgctgc gcgtaaccac 420
cacaccgcc gcgcttaatg cgcgctaca gggcgctcc cattcgccat tcaggctgcg 480
caactgttgg gaagggcgat cgggtcgggc ctcttcgcta ttacgccagc tggcgaaagg 540
gggatgtgct gcaaggcgat taagttgggt aacgccaggg ttttcccagt cacgacgttg 600
taaaacgacg gccagtgagc gcgcgtaata cgactcacta tagggcgaat tgggtaccgg 660
gccccccctc gaggtcgacg gtatcgataa gcttgatata gaattcctgc agcccggggg 720
atcctatata ataaaatggg tagttcttta gacgatgagc atatcctctc tgctcttctg 780
caaagcgatg acgagcttgt tgggtaggat tctgacagtg aaatatcaga tcacgtaagt 840
gaagatgacg tccagagcga tacagaagaa gcgtttatag atgaggtaga tgaagtgcag 900
ccaacgtcaa gcggtagtga aatattagac gaacaaaatg ttattgaaca accaggttct 960
tcattggctt ctaacagaat cttgaccttg ccacagagga ctattagagg taagaataaa 1020
cattgttggg caacttcaaa gtccacgagg cgtagccgag tctctgcact gaacattgtc 1080
agatctcaaa gaggtccgac gcgtatgtgc cgcaatatat atgaccact tttatgcttc 1140
aaactatTTT ttactgatga gataatttcg gaaattgtaa aatggacaaa tgctgagata 1200
tcattgaaac gtcgggaatc tatgacaggt gctacatttc gtgacacgaa tgaagatgaa 1260
atctatgctt tctttgggat tctggtaatg acagcagtga gaaaagataa ccacatgtcc 1320
acagatgacc tctttgatcg atctttgtca atgggtgacg tctctgtaat gagtcgtgat 1380
cgttttgatt ttttgatcg atgtcttaga atggatgaca aaagtatacg gccacactt 1440
cgagaaaacg atgtatttac tcctgttaga aaaatatggg atctctttat ccatcagtgc 1500
atacaaaatt acactccagg ggctcatttg accatagatg aacagttact tggttttaga 1560
ggacggtgtc cgtttaggat gtatatccca aacaagccaa gtaagtatgg aataaaaatc 1620
ctcatgatgt gtgacagtggt tacgaagtat atgataaatg gaatgcctta tttgggaaga 1680
ggaacacaga ccaacggagt accactcggg gaatactacg tgaaggagtt atcaaagcct 1740
gtgcacggta gttgtcgtaa tattacgtgt gacaattggg tcacctcaat ccctttggca 1800
aaaaacttac tacaagaacc gtataagtta accattgtgg gaaccgtgcg atcaacaaa 1860
cgcgagatac cggaagtact gaaaaacagt cgctccaggc cagtgggaac atcgatgttt 1920
tgttttgacg gacccttac tctcgtctca tataaaccga agccagctaa gatggtatag 1980

```

ttattatcat	cttgtgatga	ggatgcttct	atcaacgaaa	gtaccggtaa	accgcaaattg	2040
gttatgtatt	ataatcaaac	taaaggcgga	gtggacacgc	tagaccaaatt	gtgttctgtg	2100
atgacctgca	gtaggaagac	gaataggtgg	cctatggcat	tattgtacgg	aatgataaac	2160
attgectgca	taaattcttt	tattatatac	agccataatg	tcagtagcaa	gggagaaaaag	2220
gttcaaagtc	gcaaaaaatt	tatgagaaac	ctttacatga	gcctgacgtc	atcgtttatg	2280
cgtaagcggt	tagaagctcc	tactttgaag	agatatttgc	gcgataatat	ctctaataatt	2340
ttgccaaatg	aagtgcctgg	tacatcagat	gacagtactg	aagagccagt	aatgaaaaaaa	2400
cgtacttact	gtacttactg	cccctctaaa	ataaggcgaa	aggcaaattgc	atcgtagcaa	2460
aaatgcaaaa	aagttatttg	tcgagagcat	aatattgata	tgtgccaaag	ttgtttctga	2520
ctgactaata	agtataattt	gtttctatta	tgtataagtt	aagctaatta	cttatttttat	2580
aatacaagata	gactgttttt	aaagtacaaa	ataagtttat	ttttgtaaaa	gagagaattgt	2640
ttaaaagttt	tgttacttta	gaagaaattt	tgagtttttg	ttttttttta	ataaataaat	2700
aaacataaat	aaattgtttg	ttgaatttgg	tccactagt	tctagagcgg	ccgccaccgc	2760
ggtggagctc	cagcttttgt	tccctttagt	gagggttaat	tgcgcgcttg	gcgtaatcat	2820
ggtcatagct	gtttcctgtg	tgaaattgtt	atcgctcac	aattccacac	aacatacgag	2880
ccggaagcat	aaagtgtaaa	gcctgggggtg	cctaattgagt	gagctaactc	acattaattg	2940
cgttgcgctc	actgcccgtc	ttccagtcgg	gaaacctgtc	gtgccagctg	cattaatgaa	3000
tcggccaacg	cgcggggaga	ggcggtttgc	gtattggcg	ctcttccgct	tcctcgctca	3060
ctgactcgct	gcgctcgggtc	gttcggctgc	ggcgagcggg	atcagctcac	tcaaaggcgg	3120
taatacgggt	atccacagaa	tcaggggata	acgcaggaaa	gaacatgtga	gcaaaaggcc	3180
agcaaaaggc	caggaaccgt	aaaaaggccg	cgttgctggc	gtttttccat	aggctccgcc	3240
ccctgacga	gcatacacia	aatcgacgtc	caagtcagag	gtggcgaaac	ccgacaggac	3300
tataaagata	ccaggcggtt	ccccctggaa	gctccctcgt	gcgctctcct	gttccgacct	3360
tgccgcttac	cggatacctg	tccgcctttc	tcccttcggg	aagcgtggcg	ctttctcata	3420
gctcacgctg	taggtatctc	agttcggtgt	aggtcgttcg	ctccaagctg	ggctgtgtgc	3480
acgaaccccc	cgttcagccc	gaccgctcgg	ccttatccgg	taactatcgt	cttgagtcca	3540
acccggttaag	acacgactta	tcgccactgg	cagcagccac	tggtaacagg	attagcagag	3600
cgaggtatgt	aggcggtgct	acagagttct	tgaagtgggtg	gcctaactac	ggctacacta	3660
gaaggacagt	atlttggtatc	tgcgctctgc	tgaagccagt	taccttcgga	aaaagagttg	3720
gtagctcttg	atccggcaaa	caaaccaccg	ctggtagcgg	tggttttttt	gtttgcaagc	3780
agcagattac	gcgcagaaaa	aaaggatctc	aagaagatcc	tttgatcttt	tctacggggg	3840
ctgacgctca	gtggaacgaa	aactcacgtt	aagggtattt	ggtcatgaga	ttatcaaaaa	3900
ggatcttcac	ctagatcctt	ttaaattaaa	aatgaagttt	taaatcaatc	taaagtatat	3960
atgagtaaac	ttggtctgac	agttaccaat	gcttaatcag	tgaggcacct	atctcagcga	4020
tctgtctatt	tcgttcatcc	atagttgcct	gactccccgt	cgtgtagata	actacgatac	4080
gggagggctt	accatctggc	cccagtgctg	caatgatacc	gcgagaccca	cgctcaccgg	4140
ctccagattt	atcagcaata	aaccagccag	ccggaagggc	cgagcgcaga	agtggtcctg	4200
caactttatc	cgctccatc	cagtcattta	attgttgccg	ggaagctaga	gtaagtagtt	4260
cgccagttaa	tagtttgccg	aacgttggtg	ccattgctac	aggcatcggtg	gtgtcacgct	4320
cgctggttgg	tatggcttca	ttcagctccg	gttcccaacg	atcaaggcga	gttacatgat	4380
cccccatgtt	gtgcaaaaaa	gcggttagct	ccttcggtcc	tccgatcggt	gtcagaagta	4440
agttggccgc	agtgttatca	ctcatggtta	tggcagcact	gcataattct	cttactgtca	4500
tgccatccgt	aagatgcttt	tctgtgactg	gtgagtactc	aaccaagtca	ttctgagaat	4560
agtgtatgcg	gcgaccgagt	tgctcttgcc	cggcgtaaat	acgggataat	accgcgccac	4620
atagcagaac	tttaaaagtg	ctcatcattg	gaaaacgttc	ttcggggcga	aaactctcaa	4680
ggatcttacc	gctgttgaga	tccagttcga	tgtaacccac	tcgtgcaccc	aactgatctt	4740
cagcatcttt	tactttcacc	agcgtttctg	ggtgagcaaa	aacaggaagg	caaaatgccg	4800
caaaaaaggg	aataaggggc	acacggaaat	gttgaatact	catactcttc	ctttttcaat	4860
attattgaag	cattttatcag	ggttattgtc	tcatgagcgg	atacatattt	gaatgtattt	4920
agaaaaataa	acaaataggg	gttccgcgca	catttccccg	aaaagtgcc	c	4971

<210> 44

<211> 5523

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pBSII-IEI-orf
sequence

<400> 44

```

ctaaattgta agcgttaata ttttggttaa attcgcgtta aatttttgtt aaatcagctc 60
attttttaac caataggccg aaatcgccaa aatcccttat aaatcaaaag aatagaccga 120
gataggggtg agtggtgttc cagtttgga caagagtcca ctattaaaga acgtggactc 180
caacgtcaaa gggcgaaaaa cgcgtctatc gggcgatggc ccactacgtg aaccatcacc 240
ctaatacaag tttttggggt cgaggtgccg taaagcacta aatcggaacc ctaaaaggag 300
cccccgattt agagcttgac ggggaaagcc gggaacgtg gcgagaaagg aagggaagaa 360
agcgaaaagg gcgggcgcta gggcgctggc aagtgtagcg gtcacgctgc gcgtaaccac 420
cacaccgccc gcgcttaatg cgccgctaca gggcgctcc cattcgccat tcaggctgcg 480
caactgttgg gaaggcgat cggtgcgggc ctcttcgcta ttacgccagc tggcgaaagg 540
gggatgtgct gcaaggcgat taagttgggt aacgccaggg ttttcccagt caccagcttg 600
taaaacgacg gccagtgagc gcgcgtaata cgactcacta tagggcgaaat tgggtaccgg 660
gccccccctc gaggtcgacg gtatcgataa gcttcgatgt ctttgtgatg cgccgacatt 720
tttgtaggtt attgataaaa tgaacggata cagttgcccg acattatcat taaatccttg 780
gcgtagaatt tgcgggtcc attgtccgtg tgcgtagca tgcccgctaa cggacctcgt 840
acttttggtt tcaaagggtt tgcgcacaga caaatgtgc cacacttgca gctctgcatg 900
tgtgcgcgtt accacaaatc ccaacggcgc agtgtacttg ttgtatgcaa ataatctctg 960
ataaaggcgc ggcgcgcgaa tgcagctgat cagctacgct cctcgtgttc cgttcaagga 1020
cgggtgttat gacctcagat taatgtttat cggccgactg ttttcgtatc cgctcaccaa 1080
acgcgttttt gcattaacat tgtatgtcgg tagatgttct atatctaatt tgaataaata 1140
aacgataacc gcgttggttt tagagggcat aataaaagaa atattgttat cgtgttcgcc 1200
attagggcag tataaattga cgttcatgtt ggatattgtt tcagttgcaa gtgaattcct 1260
gcagcccggg ggatcctata taataaaatg ggtagttcct tagacgatga gcatatcctc 1320
tctgctcttc tgcaaaagca tgacgagctt gttggtgagg attctgacag tgaaatatca 1380
gatcacgtaa gtgaagatga cgtccagagc gatacagaag aagcgtttat agtaggta 1440
catgaagtgc agccaacgtc aagcggtagt gaaatattag acgaacaaaa tgttattgaa 1500
caaccagggt ctctattggc ttctaacaga atcttgacct tgccacagag gactattaga 1560
ggtaagaata aacattgttg gtcaacttca aagtcacga ggcgtagccg agtctctgca 1620
ctgaacattg tcagatctca aagaggtccg acgcgtatgt gccgcaatat atatgacca 1680
cttttatgct tcaaactatt ttttactgat gagataattt cggaaattgt aaaaaggaca 1740
aatgctgaga tatcattgaa acgtcgggaa tctatgacag gtgctacatt tcgtgacacg 1800
aatgaagatg aaatctatgc tttctttggt attctggtaa tgacagcagt gagaaaagat 1860
aaccacatgt ccacagatga cctctttgat cgatctttgt caatggtgta cgtctctgta 1920
atgagtcgtg atcgttttga ttttttgata cgatgtctta gaatggatga caaaagtata 1980
cggcccacac ttcgagaaaa cgatgtattt actcctgtta gaaaaatatg ggatctcttt 2040
atccatcagt gcatacaaaa ttacactcca ggggctcatt tgaccataga tgaacagtta 2100
cttggtttta gaggacggtg tccgtttagg atgtatatcc caaacaagcc aagtaagtat 2160
ggaataaaaa tcctcatgat gtgtgacagt ggtacgaagt atatgataaa tggaatgcct 2220
tatttgggaa gaggaacaca gaccaacgga gtaccactcg gtgaatacta cgtgaaggag 2280
ttatcaaagc ctgtgcacgg tagttgtcgt aatattacgt tgacaattg gttcacctca 2340
atccctttgg caaaaaactt actacaagaa ccgtataagt taaccattgt gggaaaccgtg 2400
cgatcaaaca aacgcgagat accggaagta ctgaaaaaca gtcgctccag gccagtggga 2460
acatcgatgt tttgttttga cggacccctt actctcgtct catataaacc gaagccagct 2520
aagatgggat acttattatc atcttgtgat gaggatgctt ctatcaacga aagtaccggg 2580
aaaccgcaaa tggttatgta ttataatcaa actaaaggcg gagtggacac gctagaccaa 2640
atgtgttctg tagtgacctg cagtaggaag acgaataggg ggcctatggc attattgtac 2700
ggaatgataa acattgcctg cataaattct tttattatat acagccataa tgtcagtagc 2760
aaggggagaaa aggttcaaag tcgcaaaaaa tttatgagaa acctttacat gagcctgacg 2820
tcacgtttta tgcgtaagcg tttagaagct cctactttga agagatattt gcgcgataat 2880
atctctaata ttttgccaaa tgaagtgcct ggtacatcag atgacagtac tgaagagcca 2940
gtaactgaaa aacgtactta ctgtacttac tgcccctcta aaataaggcg aaaggcaaat 3000
gcatcgtgca aaaaatgcaa aaaagtattt tgcgagagc ataataattg tatgtgcaa 3060
agttgtttct gactgactaa taagtataat ttgtttctat tatgtataag ttaagctaat 3120
tacttatttt ataatacaac atgactgttt ttaaagtaca aaataagttt atttttgtaa 3180
aagagagaat gtttaaaagt tttgttactt tagaagaaat tttgagtttt tgtttttttt 3240

```



```

taataaataa ataaacataa ataaattggt tgttgaattt ggatccacta gttctagagc 3300
ggccgccacc gcggtggagc tccagctttt gttcccttta gtgaggggta attgcgcgct 3360
tggcgtaatc atggtcatag ctgtttcctg tgtgaaattg ttatccgctc acaattccac 3420
acaacatacg agccggaagc ataaagtgt aagcctgggg tgccaatga gtgagctaac 3480
tcacattaat tgcgttgccg cactgcccga cgtccagtc gggaaacctg tegtgccagc 3540
tgcattaatg aatcggccaa cgcgcgggga gaggcggtt gcgtattggg cgctcttccg 3600
cttcctcgtc cactgactcg ctgcgctcgg tcgttcggct gcggcgagcg gtatcagctc 3660
actcaaaggc ggtaatacgg ttatccacag aatcagggga taacgcagga aagaacatgt 3720
gagcaaaaag ccagcaaaag gccaggaacc gtaaaaaggc cgctttgctg gcgtttttcc 3780
ataggctccg cccccctgac gagcatcaca aaaatcgacg ctcaagtcag aggtggcgaa 3840
accgcacagg actataaaga taccaggcgt tccccctgg aagctccctc gtgcgctctc 3900
ctgttccgac cctgccgctt accggatacc tgtccgcctt tctcccttcg ggaagcgtgg 3960
cgctttctca tagctcacgc tgtaggtatc tcagttcggg gtaggtcgtt cgctccaagc 4020
tggtgtgtgt gcacgaaccc cccgttcagc ccgaccgctg cgcttatcc ggtaactatc 4080
gtcttgagtc caaccgggtg agacacgact tatcgccact ggcagcagcc actggtaaca 4140
ggattagcag agcgagggtg gtaggcggtg ctacagagtt cttgaagtgg tggcctaact 4200
acggctacac tagaaggaca gtatttggtg tctgcgctct gctgaagcca gttaccttcg 4260
gaaaaagagt tggtagctct tgatccggca aacaaaccac cgctggtagc ggtgggtttt 4320
ttgtttgcaa gcagcagatt acgcgcagaa aaaaaggatc tcaagaagat cctttgatct 4380
tttctacggg gtctgacgct cagtggaaag aaaactcacg ttaagggatt ttggtcatga 4440
gattatcaaa aaggatcttc acctagatcc ttttaaatta aaaatgaagt tttaaatcaa 4500
tctaaagtat atatgagtaa acttggctcg acagttacca atgcttaatc agtgaggcac 4560
ctatctcagc gatctgtcta tttcggtcat ccatagttgc ctgactcccc gtcgtgtaga 4620
taactacgat acgggagggc ttaccatctg gccccagtc tgcaatgata ccgcgagacc 4680
cacgctcacc ggctccagat ttatcagcaa taaccagcc agccggaagg gccgagcgca 4740
gaagtgggcc tgcaacttta tccgcctcca tccagtctat taattggttc cggaagacta 4800
gagtaagttag ttccgaggtt aatagtttgc gcaacgttgt tgccattgct acaggcatcg 4860
tggtgtcacg ctgcgtggtt ggtatggctt cattcagctc cggttcccaa cgatcaaggc 4920
gagttacatg atcccccatg ttgtgcaaaa aagcggttag ctcttcgggt cctccgatcg 4980
ttgtcagaag taagttggcc gcagtggtat cactcatggt tatggcagca ctgcataatt 5040
ctcttactgt catgccatcc gtaagatgct tttctgtgac tgggtgagtac tcaaccaagt 5100
cattctgaga atagtgtatg cggcgaccga gttgctcttg cccggcgcca atacgggata 5160
ataccgcgcc acatagcaga actttaaaag tgctcatcat tggaaaacgt tcttcggggc 5220
gaaaactctc aaggatctta ccgctgttga gatccagttc gatgtaaccc actcgtgcac 5280
ccaactgatc ttcagcatct tttactttca ccagcggttc tgggtgagca aaaacaggaa 5340
ggcaaaaatg cgcaaaaaag ggaataaggg cgacacggaa atgttgtaata ctcatactct 5400
tcctttttca atattattga agcatttatc agggttattg tctcatgagc ggatacatat 5460
ttgaatgtat ttagaaaaat aaacaaatag gggttccgcg cacatttccc cgaaaagtcg 5520
cac
5523

```

<210> 45

<211> 6984

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
pBXP3-DsRed-orf sequence

<400> 45

```

tagttattaa tagtaatcaa ttacgggggc attagttcat agcccatata tggagttccg 60
cgttacataa cttacggtaa atggcccgcg tggctgaccg cccaacgacc ccgcccatt 120
gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc attgacgtca 180
atgggtggag tatttacggg aaactgcccc cttggcagta catcaagtgt atcatagcc 240
aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt atgccagta 300
catgacctta tgggactttc ctacttggca gtacatctac gtattagtca tcgctattac 360
catggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg actcacgggg 420

```

atttccaagt	ctccacccca	ttgacgtcaa	tgggagtttg	ttttggcacc	aaaatcaacg	480
ggactttcca	aaatgtcgt	acaactccgc	cccattgacg	caaattggcg	gtaggcggtg	540
acggtgggag	gtctatataa	gcagagctgg	tttagtgaac	cgtcagatcc	gctagcgcta	600
ccggactcag	atcctatata	ataaaatggg	tagttcttta	gacgatgagc	atatactctc	660
tgctcttctg	caaagcgtg	acgagcttgt	tggtaggat	tctgacagt	aaatatcaga	720
tcacgtaagt	gaagatgacg	tccagagcga	tacagaagaa	gcgtttatag	atgagggtaca	780
tgaagtgcag	ccaacgtcaa	gcggtagtga	aatattagac	gaacaaaatg	ttattgaaca	840
accaggttct	tcattggctt	ctaacagaat	cttgaccttg	ccacagagga	ctattagagg	900
taagaataaa	cattgttggg	caacttcaaa	gtccacgagg	cgtagccgag	tctctgcact	960
gaacattgtc	agatctcaaa	gagggtccgac	gcgtatgtgc	cgcaatatat	atgacccact	1020
tttatgcttc	aaactatttt	ttactgatga	gataatttctg	gaaattgtaa	aatggacaaa	1080
tgctgagata	tcattgaaac	gtcgggaatc	tatgacaggt	gctacatttc	gtgacacgaa	1140
tgaagatgaa	atctatgctt	tcttttggtat	tctggtaatg	acagcagtg	gaaaagataa	1200
ccacatgtcc	acagatgacc	tctttgatcg	atctttgtca	atgggtgtacg	tctctgtaat	1260
gagtcgtgat	cgttttgatt	ttttgatagc	atgtcttaga	atggatgaca	aaagtatacg	1320
gcccacactt	cgagaaaacg	atgtatttac	tcctgttaga	aaaatatggg	atctctttat	1380
ccatcagtg	atacaaaatt	acactccagg	ggctcatttg	accatagatg	aacagttact	1440
tggtttttag	ggacggtgtc	cgtttaggat	gtatatccca	aacaagccaa	gtaagtattg	1500
aataaaaaatc	ctcatgatgt	gtgacagtgg	tacgaagtat	atgataaatg	gaatgcctta	1560
tttgggaaga	ggaacacaga	ccaacggagt	accactcgg	gaatactacg	tgaaggagtt	1620
atcaaagcct	gtgcacggta	gttgtcgtaa	tattacgtgt	gacaattggg	tcacctcaat	1680
ccctttggca	aaaaacttac	tacaagaacc	gtataagtta	accattgtgg	gaaccgtgcg	1740
atcaaacaaa	cgcgagatac	cggaagtact	gaaaaacagt	cgctccaggc	cagtgggaaac	1800
atcgatgttt	tgttttgacg	gaccccttac	tctcgtctca	tataaaccca	agccagctaa	1860
gatggtatac	ttattatcat	cttgtgatga	ggatgcttct	atcaacgaaa	gtaccggtaa	1920
accgcaaatg	gttatgtatt	ataatcaaac	taaaggcgga	gtggacacgc	tagaccaaat	1980
gtgttctgtg	atgacctgca	gtaggaagac	gaataggtgg	cctatggcat	tattgtacgg	2040
aatgataaac	attgcctgca	taaattcttt	tattatatac	agccataatg	tcagtagcaa	2100
gggagaaaaag	gttcaaagtc	gcaaaaaatt	tatgagaaac	ctttacatga	gcctgacgtc	2160
atcgtttatg	cgtaagcggt	tagaagctcc	tactttgaag	agataatttgc	gcgataatat	2220
ctctaataat	ttgccaaatg	aagtgcctgg	tacatcagat	gacagtactg	aagagccagt	2280
aatgaaaaaa	cgtacttact	gtacttactg	ccccctctaa	ataaggcgaa	aggcaaatgc	2340
atcggtgcaa	aaatgcaaaa	aagtattttg	tcgagagcat	aatattgata	tgtgccaaaag	2400
ttgtttctga	ctgactaata	agtataat	gtttctatta	tgtataagtt	aagctaatta	2460
cttattttat	aatacaacat	gactgttttt	aaagtacaaa	ataagtttat	ttttgtaaaa	2520
gagagaatgt	ttaaaagt	tgttacttta	gaagaaat	tgagtttttg	ttttttttta	2580
ataaataaat	aaacataaat	aaattgtttg	ttgaatttgg	atctcgaggt	tcccacaatg	2640
gttaattcga	gctcgcccg	ggatctaatt	caattagaga	ctaattcaat	tagagcta	2700
tcaattagga	tccaagctta	tcgatttcga	accctcgacc	gccggagtat	aaatagaggc	2760
gcttcgtcta	cggagcgaca	attcaattca	aacaagcaaa	gtgaacacgt	cgctaagcga	2820
aagctaagca	aataaacaag	cgcagctgaa	caagctaaac	aatcggggta	ccgctagagt	2880
cgacggtacc	gcggggcccg	gatccaccgg	tcgccaccat	gaattctgca	gtcgacggta	2940
ccgcggggcc	gggatccacc	ggtcgccacc	atggtgcgct	cctccaagaa	cgcatcaag	3000
gagttcatgc	gcttcaaggt	gcgcattggg	ggcaccgtga	acggccacga	gttcgagatc	3060
gagggcgagg	gcgagggccg	cccctacgag	ggccacaaca	ccgtgaagct	gaagggtgacc	3120
aagggcgggc	ccctgccctt	cgcttgggac	atcctgtccc	cccagttcca	gtacggctcc	3180
aaggtgtacg	tgaagcacc	cgccgacatc	cccgactaca	agaagctgtc	cttccccgag	3240
ggcttcaagt	gggagcgcgt	gatgaacttc	gaggacggcg	gcgtggtgac	cgtgacccag	3300
gaactcctcc	tgacggacgg	ctgcttcac	tacaaggtga	agttcatcgg	cgtgaacttc	3360
ccctccgacg	gccccgtaat	gcagaagaag	accatgggct	gggaggcctc	caccgagcgc	3420
ctgtaccccc	gcgacggcgt	gctgaagggc	gagatccaca	aggccctgaa	gctgaaggac	3480
ggcgggccact	acctggtgga	gttcaagtc	atctacatgg	ccaagaagcc	cgtgcagctg	3540
ccgggtact	actacgtgga	ctccaagctg	gacatcacct	cccacaacga	ggactacacc	3600
atcgtagagc	agtacgagcg	caccgagggc	cgccaccacc	tgttcctgta	gcggcccgca	3660
ctctagatca	taatcagcca	taccacattt	gtagaggttt	tacttgcttt	aaaaaacctc	3720
ccacacctcc	ccctgaacct	gaaacataaa	atgaatgcaa	ttgtttgtgt	taacttggtt	3780
attgcagctt	ataatggtta	caaataaagc	aatagcatca	caaatttcac	aaataaagca	3840
tttttttcac	tgcattctag	ttgtggtttg	tccaaactca	tcaatgtatc	ttaaggcgta	3900

```

aattgtaagc gttaatat tttt gtttaaaatt cgcgttaaat ttttgttaaa tcagctcatt 3960
ttttaaccaa taggccgaaa tggcga aaat cccttataaa tcaaaagaat agaccgagat 4020
aggggttagt gttgttccag tttgga acaa gagtccacta ttaaagaacg tggactccaa 4080
cgtcaaaggg cgaaaaaccg tctatc aggg ggtgccgtaa agcactaaat cggaacccta aaggagagccc 4200
atcaagtttt ttgggggtcga ggtgcc gtaa gaacgtggcg agaaaggaag ggaagaaagc 4260
ccgatttaga gcttgacggg gaaagc cggc tgtagcggtc acgtgcgcgc taaccaccac 4320
gaaaggagcg ggcgctaggg cgctgg caag cgctacaggg cgcgtcaggt ggcacttttc ggggaaatgt 4380
acccgccgcg cctattttgt tttttt cta aatacattca aatatgtatc cgctcatgag 4440
gcgcgggaacc tgaataatgc ttcaataa ta ttgaaaagg aagagtcctg aggcggaag 4500
acaataaccc ggaatgtgtg tcagtt aggg tgtggaaagt ccccgagctc cccagcaggc 4560
aaccagctgt aaagcatgca tctcaatt ag ggtgtggaaa gtccccaggc 4620
agaagtatgc gcagaagtat gcaaag catg catctcaatt agtcagcaac catagtcctg 4680
tccccagcag cgcctatccc gcccta act ccgcccagtt ccgcccattc tccgccccat 4740
ccctaactc ttttttttat ttatgc agag gccgagggcg cctcggcctc tgagctattc 4800
ggctgactaa cagaagtagt gaggaggc tt tttggaggc ctaggctttt gcaaagatcg atcaagagac 4860
cagaagtagt tcgtttcgca tgattga aca agatggattg cagcaggtt ctccggccgc 4920
aggatgagga cgttttcgca gctatg actg ggcacaacag acaatcggct gctctgatgc 4980
ttgggtggag aggtctattc gctatg actg cgcagggggc cccggttctt tttgtcaaga cgcactgtc 5040
cgccgtgttc cggctgtcag cgcagggggc agcgcggcta tcgtggctgg ccacgacggg 5100
cggtgccctg aatgaactgc aagacg aggg cactgaagcg ggaagggact ggctgctatt 5160
cgttccttgc gcagctgtgc tcgacgtt gt atctcctgtc gtcctgcgc agaaagtatc 5220
gggcgaagtg ccggggcagg atctcctgc ggcggtcgca tgcgttgat ccggtacct gccattcga 5280
catcatggct gatgcaatgc ggcggtcgca acgtactcg atggaagccg gtcttgtcga 5340
ccaccaagcg aaacatcgca tcgagcgagc acgtactcg gctcgccca gccgaactgt tcgccaggct 5400
tcaggatgat ctggacgaag agcatc aggg gctcgccca catggcgatg cctgcttgcc 5460
caaggcgagc atgcccagcg gcgaggatct tggattcact gactgtggcc ggctgggtgt 5520
gaatatcatg gtggaaaatg gccgcttttc tagcgttggc attgctgaag agcttggcgg 5580
ggcggaaccg tatcaggaca gaccgcttcc tcgtgcttta cgggtatcgcc gctcccatt cgacgcgat 5640
cgaatgggct gaccgcttcc cgccttcttg acgagttctt ctgagcggga ctctgggggt cgaatgacc 5700
cgccttctat gaccaagcga cgcccaacct gccatcacga gatttcgatt ccaccgccgc ctctatgaa 5760
aggttgggct tcggaatcgt tttccgggac gccggtgga tgatcctcca gcgcggggat 5820
ctcatgctgg agttcttcgc ccaccctagg gggaggctaa ctgaaacac gaaggagaca 5880
ataccggaag gaacccgcgc tatgacggca ataaaaagac agaataaaac gcacggtgtt 5940
gggtcgtttg ttcataaacg cggggttcgg tcccagggtt ggcactctgt cgatacccca 6000
ccgagacccc attgggggcca atacgcccgc gtttcttctt tttcccccacc cccccccca 6060
agttcgggtg aaggcccagg gctcgcagcc aacgtcgggg atttttaatt taaaaggatc 6180
tcaggttact catatatact ttagattgat ttaaaacttc cttaacgtga gttttcgttc 6240
taggtgaaga tcccttttga taatctcatg accaaaatcc cttgagatcc ttttttctg 6300
cactgagcgt cagaccccgat agaaaagatc aaaggatctt cttagatcc cagcgggtgtt 6360
cgcgtaatct gctgcttgca aacaaaaaaa ccaccgctac cagcgggtgtt 6420
gatcaagagc taccaactct ttttccgaag gtaactggct tcagcagagc gcagatacca 6480
aatactgtcc ttctagtgtg gccgtagtta ccagtggctg ctgccagtgg cgataagtcg 6540
cctacatacc tcgctctgct aagacgatag ttaccggata aggcgcagcg gtcgggctga 6600
tgtcttaccg ggttggaact cctgcacaca gccagcttg gagcgaacga cctacaccga actgagatac 6660
acgggggggt ctacagcgtg agctatgaga aagcgccacg cttcccgaag ggagaaaggc ggacaggat 6720
cggtaagcg gcagggtcgg aacaggagag cgcacgaggg agcttccagg gggaaacgcc 6780
tggtatcttt atagtctgt cgggtttcgc cacctctgac ttgagcgtcg atttttgtga 6840
tgctcgtcag gggggcggag cctatggaaa aacgccagca acgcggcctt ttacggttc 6900
ctggcctttt gctggccttt tgctcacatg ttctttctcg cgttatcccc tgattctgtg 6960
gataaccgta ttaccgcat gcat 6984

```

<210> 46

<211> 4613

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pCRII-ITR
sequence

<220>

<221> CDS

<222> (344) .. (922)

<400> 46

```

agcgcccaat acgcaaaccg cctctccccg cgcgttgccc gattcattaa tgcagctggc 60
acgacagggt tcccgactgg aaagcgggca gtgagcgcaa cgcaattaat gtgagttagc 120
tcactcatta ggcaccccag gctttacact ttatgcttcc ggctcgtatg ttgtgtggaa 180
ttgtgagcgg ataacaattt cacacaggaa acagctatga ccatgattac gccaaagcttg 240
gtaccgagct cggatccact agtaacggcc gccagtgtgc tggaattcgg cttggatccc 300
atgcgtcaat tttacgcaga ctactcttct agggttaatc tag ctg cat cag gat 355
                                         Leu His Gln Asp
                                         1

cat atc gtc ggg tct ttt ttc cgg ctc agt cat cgc cca agc tgg cgc 403
His Ile Val Gly Ser Phe Phe Arg Leu Ser His Arg Pro Ser Trp Arg
  5                10                15                20

tat ctg ggc atc ggg gag gaa gaa gcc cgt gcc ttt tcc cgc gag gtt 451
Tyr Leu Gly Ile Gly Glu Glu Glu Ala Arg Ala Phe Ser Arg Glu Val
                25                30                35

gaa gcg gca tgg aaa gag ttt gcc gag gat gac tgc tgc tgc att gac 499
Glu Ala Ala Trp Lys Glu Phe Ala Glu Asp Asp Cys Cys Cys Ile Asp
                40                45                50

gtt gag cga aaa cgc acg ttt acc atg atg att cgg gaa ggt gtg gcc 547
Val Glu Arg Lys Arg Thr Phe Thr Met Met Ile Arg Glu Gly Val Ala
                55                60                65

atg cac gcc ttt aac ggt gaa ctg ttc gtt cag gcc acc tgg gat acc 595
Met His Ala Phe Asn Gly Glu Leu Phe Val Gln Ala Thr Trp Asp Thr
                70                75                80

agt tcg tcg cgg ctt ttc cgg aca cag ttc cgg atg gtc agc ccg aag 643
Ser Ser Ser Arg Leu Phe Arg Thr Gln Phe Arg Met Val Ser Pro Lys
                85                90                95                100

cgc atc agc aac ccg aac aat acc ggc gac agc cgg aac tgc cgt gcc 691
Arg Ile Ser Asn Pro Asn Asn Thr Gly Asp Ser Arg Asn Cys Arg Ala
                105                110                115

ggt gtg cag att aat gac agc ggt gcg gcg ctg gga tat tac gtc agc 739
Gly Val Gln Ile Asn Asp Ser Gly Ala Ala Leu Gly Tyr Tyr Val Ser
                120                125                130

```

gag gac ggg tat cct ggc tgg atg ccg cag aaa tgg aca tgg ata ccc 787
 Glu Asp Gly Tyr Pro Gly Trp Met Pro Gln Lys Trp Thr Trp Ile Pro
 135 140 145

cgt gag tta ccc ggc ggg cgc gcc tgc ttc att cac gtt ttt gaa ccc 835
 Arg Glu Leu Pro Gly Gly Arg Ala Ser Phe Ile His Val Phe Glu Pro
 150 155 160

gtg gag gac ggg cag act cgc ggt gca aat gtg ttt tac agc gtg atg 883
 Val Glu Asp Gly Gln Thr Arg Gly Ala Asn Val Phe Tyr Ser Val Met
 165 170 175 180

gag cag atg aag atg ctc gac acg ctg cag aac acg cag ctagattaac 932
 Glu Gln Met Lys Met Leu Asp Thr Leu Gln Asn Thr Gln
 185 190

cctagaaaga taatcatatt gtgacgtacg ttaaagataa tcatgcgtaa aattgacgca 992

tgggatccaa gccgaattct gcagatatcc atcacactgg cggccgctcg agcatgcac 1052

tagaggggccc aattcgccct atagtgagtc gtattacaat tcaactggcg tcgttttaca 1112

acgtcgtgac tgggaaaacc ctggcgttac ccaacttaat cgccttgacg cacatcccc 1172

tttcgccagc tggcgtaata gcgaagaggc ccgcaccgat cgcccttccc aacagttgag 1232

cagcctgaat ggcgaatggg acgcgcctcg tagcggcgca ttaagcgagg cgggtgtggt 1292

gggtacgcgc agcgtgaccg ctacacttgc cagcgcccta gcgcccgcct ctttcgcttt 1352

cttcccttcc tttctcgcca cgttcgaggc ctttccccgt caagctctaa atcgggggct 1412

ccctttaggg ttccgattta gagctttacg gcacctcgac cgcaaaaaac ttgatttggg 1472

tgatggttca cgtagtgggc catcgccctg atagacgggt tttcgccctt tgacgttggg 1532

gtccacgttc tttaatatgt gactcttggt ccaaactgga acaaacactca accctatcgc 1592

ggtctattct tttgatttat aagggtttt gccgatttcg gcctattggt taaaaaatga 1652

gctgatttaa caaattcagg gcgcaagggc tgctaaagga accggaacac gtagaaagcc 1712

agtccgcaga aacggtgctg acccgggatg aatgtcagct actgggctat ctggacaagg 1772

gaaaacgcaa gcgcaaagag aaagcaggta gcttgacgtg ggcttacatg gcgatagcta 1832

gactggggcg ttttatggac agcaagcgaa ccggaattgc cagctggggc gccctctggt 1892

aagggttggg agccctgcaa agtaaactgg atggctttct tgccgccaag gatctgatgg 1952

cgcaggggat caagatctga tcaagagaca ggatgaggat cgtttcgcat gattgaacaa 2012

gatggattgc acgcagggtc tccggccgct tgggtggaga ggctattcgg ctatgactgg 2072

gcacaacaga caatcggtcg ctctgatgcc gccgtgttcc ggctgtcagc gcagggggcg 2132

ccggttcttt ttgtcaagac cgacctgtcc ggtgcctga atgaactgca ggacgaggca 2192

gcgcggctat cgtggctggc cacgacgggc gttccttgcg cagctgtgct cgacgttgct 2252
 actgaagcgg gaagggactg gctgctattg ggcgaagtgc cggggcagga tctcctgtca 2312
 tctcgccttg ctctgcccga gaaagtatcc atcatggctg atgcaatgcg gcggctgcat 2372
 acgcttgatc cggctacctg cccattcgac caccaagcga aacatcgcat cgagcgagca 2432
 cgtactcgga tgggaagccg tcttgctgat caggatgatc tggacgaaga gcatcagggg 2492
 ctgcgcccag ccgaactgtt cgccaggctc aaggcgcgca tgcccgcagg cgaggatctc 2552
 gtcgtgatcc atggcgatgc ctgcttgccg aatatcatgg tggaaaatgg ccgcttttct 2612
 ggattcaacg actgtggccg gctgggtgtg gcggaccgct atcaggacat agcgttggat 2672
 acccgtgata ttgctgaaga gcttgccggc gaatgggctg accgcttcct cgtgctttac 2732
 ggtatcgccg ctcccgatcc gcagcgcac gccttctatc gccttcttga cgagttcttc 2792
 tgaattgaaa aaggaagagt atgagtatcc aacatttccg tgtcgccctt attccctttt 2852
 ttgcggcatt ttgccttcct gtttttgctc acccagaaac gctggtgaaa gtaaaagatg 2912
 ctgaagatca gttgggtgca cgagtgggtt acatcgaaact ggatctcaac agcggtaaga 2972
 tccttgagag ttttcgcccc gaagaacgtt ttccaatgat gagcactttt aaagtctctg 3032
 tatgtcatatc actattatcc cgtattgacg ccgggcaaga gcaactcggc cgccggggcg 3092
 ggtattctca gaatgacttg gttgagtact caccagtcac agaaaagcat cttacggatg 3152
 gcatgacagt aagagaatta tgcagtgtg ccataaccat gagtgataac actgcggcca 3212
 acttacttct gacaacgate ggaggaccga aggagctaac cgcttttttg cacaacatgg 3272
 gggatcatgt aactcgccct gatcgttggg aaccggagct gaatgaagcc ataccaaacg 3332
 acgagagtga caccacgatg cctgtagcaa tgccaacaac gttgcgcaaa ctattaactg 3392
 gcgaactact tactctagct tcccggcaac aattaataga ctggatggag gcggataaag 3452
 ttgcaggacc acttctgcgc tcggcccttc cggctggctg gtttattgct gataaatctg 3512
 gagccggtga gcgtgggtct cgcggtatca ttgcagcact ggggccagat ggtaagccct 3572
 cccgtatcgt agttatctac acgacgggga gtcaggcaac tatggatgaa cgaaatagac 3632
 agatcgctga gataggtgcc tcaactgatta agcattggta actgtcagac caagtttact 3692
 catatatact ttagattgat ttaaaacttc atttttaatt taaaaggatc taggtgaaga 3752
 tcctttttga taatctcatg accaaaatcc cttaacgtga gttttcgttc cactgagcgt 3812
 cagaccccgat agaaaagatc aaaggatctt cttgagatcc ttttttctg cgcgtaatct 3872
 gctgcttgca aacaaaaaaa ccaccgctac cagcgggtgt ttgtttgccg gatcaagagc 3932

!

<213> Artificial Sequence

<223> Description of Artificial Sequence: pCRII-ITR
amino acid sequence

Leu 1	His	Gln	Asp	His 5	Ile	Val	Gly	Ser	Phe 10	Phe	Arg	Leu	Ser	His 15	Arg
Pro	Ser	Trp	Arg 20	Tyr	Leu	Gly	Ile	Gly 25	Glu	Glu	Glu	Ala	Arg 30	Ala	Phe
Ser	Arg	Glu 35	Val	Glu	Ala	Ala	Trp 40	Lys	Glu	Phe	Ala	Glu 45	Asp	Asp	Cys
Cys	Cys 50	Ile	Asp	Val	Glu	Arg 55	Lys	Arg	Thr	Phe	Thr 60	Met	Met	Ile	Arg
Glu 65	Gly	Val	Ala	Met	His 70	Ala	Phe	Asn	Gly	Glu 75	Leu	Phe	Val	Gln	Ala 80
Thr	Trp	Asp	Thr	Ser 85	Ser	Ser	Arg	Leu	Phe 90	Arg	Thr	Gln	Phe	Arg 95	Met
Val	Ser	Pro	Lys 100	Arg	Ile	Ser	Asn	Pro 105	Asn	Asn	Thr	Gly	Asp 110	Ser	Arg
Asn	Cys	Arg 115	Ala	Gly	Val	Gln	Ile 120	Asn	Asp	Ser	Gly	Ala 125	Ala	Leu	Gly

Tyr Tyr Val Ser Glu Asp Gly Tyr Pro Gly Trp Met Pro Gln Lys Trp
 130 135 140

Thr Trp Ile Pro Arg Glu Leu Pro Gly Gly Arg Ala Ser Phe Ile His
 145 150 155 160

Val Phe Glu Pro Val Glu Asp Gly Gln Thr Arg Gly Ala Asn Val Phe
 165 170 175

Tyr Ser Val Met Glu Gln Met Lys Met Leu Asp Thr Leu Gln Asn Thr
 180 185 190

Gln

<210> 48

<211> 8999

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: p(PZ)-Bac-EYFP
 sequence

<400> 48

```

accgaagtat acacttaaat tcagtgcacg tttgcttggt gagaggaaag gttgtgtgcg 60
gacgaatttt tttttgaaaa cattaaccct tacgtggaat aaaaaaaaaat gaaatattgc 120
aaatthttgct gcaaagctgt gactggagta aaattaattc acgtgccgaa gtgtgctatt 180
aagagaaaaat tgtgggagca gagccttggg tgcagccttg gtgaaaactc ccaaatttgt 240
gatacccaact ttaatgattc gcagtgaag gctgcacctg caaaagggtca gacattttaa 300
aggaggcgac tcaacgcaga tgccgtacct agtaaagtga tagagcctga accagaaaaag 360
ataaaagaag gctataccag tgggagtaca caaacagagt aagtttgaat agtaaaaaaa 420
atcattttatg taacaataaa cgtgactgtg cgtaggtcc tgttcattgt ttaatgaaaa 480
taagagcttg agggaaaaaaa ttcgtacttt ggagtacgaa atgcgtcggt tagagcagca 540
gccgaattca ctggccgtcg ttttacaacg tcgtgactgg gaaaaccctg gcgttaccca 600
acttaatcgc cttgcgcac atcccccttt cgccagctgg cgtaatagcg aagaggcccg 660
caccgatcgc ccttcccaac agttgcgcag cctgaatggc gaatggcgct ttgctgggt 720
tccggcacca gaagcgggtgc cggaaagctg gctggagtgc gatcttcctg aggcgatata 780
tgtcgtcgtc ccctcaaact ggcagatgca cggttacgat gcgcccattc acaccaacgt 840
aacctatccc attacggtca atccgcggtt tgttcccacg gagaatccga cgggttgtta 900
ctcgtccaca tttaatgttg atgaaagctg gctacaggaa ggccagacgc gaattatttt 960
tgatggcggt aactcggcgt ttcattctgt gtgcaacggg cgctgggtcg gttacggcca 1020
ggacagtcgt ttgccgtctg aatttgacct gagcgcattt ttacgcgccg gagaaaaccg 1080
cctcgcggtg atggtgctgc gttggagtga cggcagttat ctggaagatc aggatatgtg 1140
gcggatgagc ggcattttcc gtgacgtctc gttgctgcat aaaccgacta cacaaatcag 1200
cgatttccat gttgccactc gctttaatga tgatttcagc cgcgctgtac tggaggctga 1260
agttcagatg tgcggcgagt tgcgtgacta cctacgggta acagtttctt tatggcaggg 1320
tgaaacgcag gtcgccagcg gcaccgcgcc tttcggcggt gaaattatcg atgagcgtgg 1380
tggttatgcc gatcgcgtca cactacgtct gaacgtcgaa aaccgcgaaac tgtggagcgc 1440
cgaaatcccg aatctctatc gtgcggtggt tgaactgcac accgccgacg gcacgctgat 1500
tgaagcagaa gcctgcgatg tcggtttccg cgaggtgcgg attgaaaatg gtctgctgct 1560
gctgaacggc aagccggtgc tgattcgagg cgtaaacgt cagcagcatc atcctctgca 1620
tggtcagggt atggatgagc agacgatggt gaaggatata ctgctgatga agcagaacaa 1680
ctttaacgcc gtgcgctggt cgcattatcc gaaccatccg ctgtggtaca cgctgtgcga 1740
ccgctacggc ctgtatgtgg tggatgaagc caatattgaa acccacggca tggtgccaat 1800
gaatcgtctg accgatgatc cgcgctgggt accggcgatg agcgaacgcg taacgcgaat 1860
ggtgcagcgc gatcgtaatc acccgagtgt gatcatctgg tcgctgggga atgaatcagg 1920

```


ccacggcgct	aatcacgacg	cgtgtgatacg	ctggatcaaa	tctgtcgatc	cttcccgcgc	1980
ggtgcagtat	gaaggcggcg	gagccgacac	cacggccacc	gatattat	gcccgatgta	2040
cgcgcgcgtg	gatgaagacc	agcccttccc	ggctgtgccg	aaatgggtcca	tcaaaaaatg	2100
gctttcgcta	cctggagaga	cgcgcgcgct	gatcctttgc	gaatacgcgc	acgcgatggg	2160
taacagtctt	ggcgggttctg	ctaaatactg	gcaggcgctt	cgtcagtatc	cccgtttaca	2220
gggcggcttc	gtctgggact	gggtggatca	gtcgctgatt	aaatatgatg	aaaacggcaa	2280
cccggtggtcg	gcttacggcg	gtgatttttg	cgatacgcgc	aacgatcgcc	agttctgtat	2340
gaacggtctg	gtctttgccg	accgcacgcc	gcatccagcg	ctgacggaag	caaaacacca	2400
gcagcagttt	ttccagttcc	gtttatccgg	gcaaaccatc	gaagtgacca	gcgaatacct	2460
gttccgtcat	agcgataacg	agctcctgca	ctggatggtg	gcgctggatg	gtaagccgct	2520
ggcaagcggg	gaagtgcctc	tggatgtcgc	tccacaaggt	aaacagttga	ttgaactgcc	2580
tgaactaccg	cagccggaga	gcgcgggga	actctggctc	acagtacgcg	tagtgcaacc	2640
gaacgcgacc	gcatggtcag	aagccgggca	catcagcgcc	tggcagcagt	ggcgtctggc	2700
ggaaaacctc	agtgtgacgc	tccccgcgcg	gtccccagcc	atcccgcatc	tgaccaccag	2760
cgaaatggat	ttttgcatcg	agctgggtaa	taagcgttgg	caatttaacc	gccagtcagg	2820
ctttctttca	cagatgtgga	ttggcgataa	aaaacaactg	ctgacgcgcg	tgcgcgatca	2880
gttcacctgg	gcaccgctgg	ataacgacat	tggcgtaagt	gaagcgaccc	gcattgaccc	2940
taacgcctgg	gtcgaacgct	ggaaggcggc	gggccttac	caggccgaag	cagcgttggt	3000
gcagtgcacg	gcagatacac	ttgctgatgc	ggtgctgatt	acgaccgctc	acgcgtggca	3060
gcatcagggg	aaaaccttat	ttatcagccg	gaaaacctac	cggattgatg	gtagtggcca	3120
aatggcgatt	accggttgatg	ttgaagtggc	gagcgataca	ccgcattccg	cgcggattgg	3180
cctgaactgc	cagctggcgc	aggtagcaga	gcgggtaaac	tggctcggat	tagggccgca	3240
agaaaactat	cccgaaccgc	ttactgcgcg	ctgttttgac	cgctgggac	tgccattgtc	3300
agacatgtat	accccgctacg	tcttcccag	cgaaaacggg	ctgcgctgcg	ggacgcgcga	3360
attgaattat	ggcccacacc	agtggcgcg	cgacttccag	ttcaacatca	gccgctacag	3420
tcaacagcaa	ctgatggaaa	ccagccatcg	ccatctgctg	cacgcggaag	aaggcacatg	3480
gctgaatate	gacgggtttcc	atatggggat	tgggtggcg	gactcctgga	gcccgtcagt	3540
atcggcgga	ttccagctga	gcgcgggtcg	ctaccattac	cagttgggtc	ggtgtcgggg	3600
atccgtcgac	taaggccaaa	gagtcataat	tttgttcac	aatgggttat	aacatatggg	3660
ttatattata	agtttgtttt	aagtttttga	gactgataag	aatgtttcga	tcgaatatcc	3720
catagaacaa	caatagtatt	acctaattac	caagtcttaa	tttagcaaaa	atgttattgc	3780
ttatagaaaa	aataaattat	ttatttgaaa	tttaaagtca	acttgtcatt	taatgtcttg	3840
tagacttttg	aaagtcttac	gatacaatta	gtatctaata	tacatgggtt	cattctacat	3900
tctatattag	tgatgatttc	tttagctagt	aatacatttt	aattatattc	ggctttgatg	3960
attttctgat	tttttccgaa	cggatttttcg	tagacctttt	cgatctcata	atggctcatt	4020
ttattgcgat	ggacggtcag	gagagctcca	cttttgaaat	tctgttcgca	gacaccgcat	4080
ttgtagcaca	tagccgggac	atccgggttg	gggagatttt	ccagtcctcg	ttgcaattgg	4140
ttttcgggaa	tgcgttgca	gcgcatacgc	tctatatect	ccgaacggcg	ctggttgacc	4200
ctagcattta	cataaggatc	agcagcaaaa	tttgcctctg	cttcattgcc	cggaatcaca	4260
gcaatcagat	gtcccttttcg	gttacgatgg	atattcaggt	gcgaaccgca	cacaaagctc	4320
tcgcgcgaca	ctccacactg	atatggtcgc	tcgcccgtg	gcgcgcgata	tggatcttaa	4380
ggtcgttgg	ctgcacaaa	ctcttgctgc	acattttgca	ggagtacggc	ctttgacccg	4440
tgtgcaatcg	catgtgtcgc	gccagcttgt	tctgcgaaat	aaacttcttg	gagcagatgc	4500
ggccgcccgg	ggtgggca	gaactccagc	atgagatccc	cgcgctggag	gatcatccag	4560
ccggcgctcc	ggaaaacgat	tccgaagccc	aacctttcat	agaaggcggc	ggtggaatcg	4620
aaatctcgtg	atggcaggtt	gggcgtcgct	tggtcggtea	tttcgaaccc	cagagtcccg	4680
ctcagaagaa	ctcgtcaaga	aggcgataga	aggcgatg	ctgcgaatcg	ggagcggcga	4740
taccgtaaa	cacgaggaag	cggtcagccc	attcgccg	aagctcttca	gcaatatcac	4800
gggtagccaa	cgctatgtcc	tgatagcgg	ccgccacacc	cagccggcca	cagtcgatga	4860
atccagaaaa	gcggccattt	tccaccatga	tattcggcaa	gcaggcatcg	ccatgggtca	4920
cgacgagatc	ctcgccgtcg	ggcatgcgcg	ccttgagcct	ggcgaacagt	tcggctggcg	4980
cgagccctcg	atgctcttcg	tccagatcat	cctgatcgac	aagaccggct	tccatccgag	5040
tacgtgctcg	ctcgatgcga	tgtttcgctt	ggtggtcgaa	tgggcaggta	gccggatcaa	5100
gcgtatgcag	ccgcgcgcat	gcatcagcca	tgatggat	tttctcggca	ggagcaaggt	5160
gagatgcag	gagatcctgc	cccggcaatt	cgcccaatag	cagccagtc	cttcccgcct	5220
cagtgacaac	gtcgagcaca	gctgcgcaag	gaacgcgcgt	cgtggccagc	cacgatagcc	5280
gcgctgcctc	gtcctgcagt	tcattcaggg	caccggacag	gtcggctctg	acaaaaagaa	5340
ccgggcgcgc	ctgcgctgac	agccggaaca	cggcggcac	agagcagccg	attgtctgtt	5400

gtgccagtc	atagccgaat	agcctctcca	cccaagcggc	eggagaacct	gcgtgcaatc	5460
catcttgttc	aatcatgcga	aacgatccctc	atcctgtctc	ttgatcagat	cttgatcccc	5520
tgcgccatca	gaccccttggc	ggcaagaaaag	ccatccagtt	tactttgcag	ggcttcccaa	5580
ccttaccaga	ggcgcccca	gctggcaatt	ccggttcgct	tgctgtccat	aaaaccgccc	5640
agtctagcta	tcgccatgta	agcccaactgc	aagctacctg	ctttctcttt	gcgcttgcg	5700
tttcccttgt	ccagatagcc	cagtagctga	cattcatccg	gggtcagcac	cgtttctgcg	5760
gactggcttt	ctacgtgttc	cgcttccctt	agcagccctt	gcgccctgag	tgcttgccgc	5820
agcgtgaagc	taattcatgg	ttataaattt	ttgttaaate	agctcatttt	ttaaccaata	5880
ggccgaaatc	ggcaaaatcc	cttataaate	aaaagaatag	cccagatag	ggttgagtg	5940
tgttccagtt	tggacaaga	gtccactatt	aaagaacgtg	gactccaacg	tcaaagggcg	6000
aaaaaccgtc	tatcagggcg	atggccggat	cagcttatgc	ggtgtgaaat	accgcacaga	6060
tgcgtaagga	gaaaataccg	catcaggcgc	tcttcgctt	cctcgctcac	tgactcgctg	6120
cgctcggtcg	ttcggtcgcg	gcgagcggta	tcagctcact	caaaggcggg	aatacggtta	6180
tccacagaat	caggggataa	cgcaggaaaag	aacatgtgag	caaaaggcca	gcaaaaggcc	6240
aggaaccgta	aaaaggccgc	ggttgcgtggc	tttttccata	ggctccgccc	ccctgacgag	6300
catcacaaaa	atcgacgtc	aagtcagagg	tggcgaaacc	cgacaggact	ataaagatac	6360
caggcgtttc	ccccctggaag	ctccctcgtg	cgctctctctg	ttccgacctt	gccgcttacc	6420
ggatacctgt	ccgcctttct	cccttcggga	agcgtggcgc	tttctcatag	ctcacgctgt	6480
aggtatctca	gttcgggtgta	ggtcggttcgc	tccaagctgg	gctgtgtgca	cgaaccccc	6540
gttcagcccg	accgctgcgc	cttatccggg	aactatcgtc	ttgagtccaa	cccggtaaga	6600
cacgacttat	cgccactggc	agcagccact	ggtaacagga	ttagcagagc	gaggtatgta	6660
ggcggtgcta	cagagttctt	gaagtgggtgg	cttaactacg	gctacactag	aaggacagta	6720
tttgggtatct	gcgctctgct	gaagccagtt	accttcggaa	aaagagttgg	tagctcttga	6780
tccggcaaac	aaaccaccgc	tggtagcggc	ggttttttgt	ttgcaagcag	cagattacgc	6840
gcagaaaaaa	aggatctcaa	gaagatcctt	tgatcttttc	ttactgaacg	gtgatcccca	6900
cgggaattgc	ggccgcggaa	ttctcatggt	tgacagctta	tcactgataa	gctggccgct	6960
ctagaactag	tgttcccaca	atgggttaatt	cgagctcgcc	cggggatcta	attcaattag	7020
agactaattc	aatttagagct	aattcaatta	ggatccaagc	ttatcgattt	cgaacctctg	7080
accgccggag	tataaataga	ggcgcttcgt	ctacggagcg	acaattcaat	tcaaacaagc	7140
aaagtgaaca	cgctcgtaag	cgaaagctaa	gcaaataaac	aagcgcagct	gaacaagcta	7200
aacaatcggg	gtaccgctag	agtcgacggg	acgatccacc	ggctcgccacc	atggtgagca	7260
agggcgagga	gctgttcacc	gggggtgggc	ccatcctggg	cgagctggac	ggcgacgtaa	7320
acggccacaa	gttcagcgtg	tccggcgagg	gcgagggcga	tgccacctac	ggcaagctga	7380
ccctgaagtt	catctgcacc	accggcaagc	tgcccgctgc	ctggcccacc	ctcgtgacca	7440
ccttcgggta	cgccctgcag	tgcttcgccc	gctaccccga	ccacatgaag	cagcacgact	7500
tcttcaagtc	cgccatgccc	gaaggctacg	tccaggagcg	caccatcttc	ttcaaggacg	7560
acggcaacta	caagaccgcg	gccgaggtga	agttcgaggg	cgacaccctg	gtgaaccgca	7620
tcgagctgaa	gggcatcgac	ttcaaggagg	acggcaacat	cctggggcac	aagctggagt	7680
acaactacaa	cagccacaac	gtctatatca	tggccgacaa	gcagaagaac	ggcatcaagg	7740
tgaacttcaa	gatccgccac	aacatcgagg	acggcagcgt	gcagctcgcc	gacctacc	7800
agcagaacac	ccccatcggc	gacggccccc	tgctgctgcc	cgacaaccac	tacctgagct	7860
accagtccgc	cctgagcaaa	gaccccaacg	agaagcgcga	tcacatggtc	ctgctggagt	7920
tcgtgaccgc	cgccgggatc	actctcgcca	tggacgagct	gtacaagtaa	agcggccgcg	7980
actctagatc	ataatcagcc	ataccacatt	tgtagagggt	ttacttgctt	taaaaaacct	8040
cccacacctc	cccctgaacc	tgaacataa	aatgaatgca	attgttggtg	ttacttgctt	8100
tattgcagct	tataatgggt	acaaataaag	caatagcatc	acaaatttca	caaataaagc	8160
atctttttca	ctgcattcta	ggtgtggttt	gtccaaaactc	atcaatgtat	cttaaagctt	8220
atcgatacgc	gtacggcact	agtggatccc	atgcgtcaat	tttacgcatg	attatcttta	8280
acgtacgtca	caatatgatt	atctttctag	ggttaactca	gctgcgtgtt	ctgcagcgtg	8340
tcgagcatct	tcactctgctc	catcacgctg	taaaacacat	ttgcaccgcg	agtctgcccg	8400
tcctccacgg	gttcaaaaac	gtgaatgaac	gaggcgccgc	cgccgggtta	ctcacggggt	8460
atccatgtcc	atcttctgcg	catccagcca	ggatacccg	cctcgctgac	gtaatatccc	8520
agcgcgcac	cgctgtcatt	aatctgcaca	ccggcacggc	agttccggct	gtcgccggta	8580
ttgttcgggt	tgctgatgcg	cttcgggctg	accatccgga	actgtgtccg	gaaaagccgc	8640
gacgaactgg	tatcccaggt	ggcctgaacg	aacagttcac	cgttaaaggc	gtgcatggcc	8700
acaccttccc	gaatcatcat	ggtaaacgtg	cgttttcgct	caacgtcaat	gcagcagcag	8760
tcatectcgg	caaactcttt	ccatgccgct	tcaacctcgc	gggaaaaggc	acgggcttct	8820
tcctccccga	tgcccagata	gcgccagctt	gggcgatgac	tgagccggaa	aaaagacccg	8880

acgatatgat cctgatgcag ctagattaac cctagaaaga tagtctgcgt aaaattgacg 8940
 catgggatcc cccgggctgc aggaattcga tatcaagctt atcgataccg tcgaagctt 8999

<210> 49

<211> 9012

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: p(PZ)-Bac-ECFP
 sequence

<400> 49

accgaagtat	acacttaaat	tcagtgcacg	tttgcttggt	gagaggaaaag	gttgtgtgctg	60
gacgaatttt	tttttgaaaa	cattaaccct	tacgtggaat	aaaaaaaaaat	gaaatattgct	120
aaatttttgct	gcaaagctgt	gactggagta	aaattaattc	acgtgccgaa	gtgtgctatt	180
aagagaaaaat	tgtgggagca	gagccttggg	tcagcccttg	gtgaaaactc	ccaaatttgt	240
gatacccaact	ttaatgattc	gcagtggaa	gctgcacctg	caaaagggtca	gacattttaa	300
aggaggcgac	tcaacgcaga	tgccgtacct	agtaaagtga	tagagcctga	accagaaaaag	360
ataaaagaag	gctataccag	tgggagtaga	caaacagagt	aagtttgaat	agtaaaaaaa	420
atcattttatg	taaacaataa	cgtgactgtg	cgtaggtcc	tgttcattgt	ttaatgaaaa	480
taagagcttg	agggaaaaaa	ttcgtacttt	ggagtacgaa	atgcgtcgtt	tagagcagca	540
gccgaattca	ctggccgtcg	ttttacaacg	tcgtgactgg	gaaaaccctg	gcgttaccga	600
acttaatcgc	cttgccagcac	atcccccttt	cgccagctgg	cgtaatagcg	aagaggcccg	660
caccgatcgc	ccttcccaac	agttgcgcag	cctgaatggc	gaatggcgct	ttgcctggtt	720
tccggcacca	gaagcgggtgc	cggaaagctg	gctggagtgc	gatcttcctg	aggccgatac	780
tgtcgtcgtc	ccctcaaact	ggcagatgca	cggttacgat	gcgcccatct	acaccaacgt	840
aacctatccc	attacggtca	atccgccgtt	tgttcccacg	gagaatccga	cgggttggtt	900
ctcgtccaca	tttaatgttg	atgaaagctg	gctacaggaa	ggccagacgc	gaattatttt	960
tgatggcggt	aactcggcgt	ttcatctgtg	gtgcaacggg	cgctgggtcg	gttacggcca	1020
ggacagtcgt	ttgccgtctg	aatttgacct	gagcgcattt	ttacgcgccg	gagaaaaccg	1080
cctcgcgggtg	atgggtgctgc	gttggagtga	cggcagttat	ctggaagatc	aggatatgtg	1140
gcggatgagc	ggcattttcc	gtgacgtctc	gttgcgtcat	aaaccgacta	cacaaatcag	1200
cgatttccat	gttgccactc	gctttaatga	tgatttcagc	cgcgctgtac	tggaggctga	1260
agttcagatg	tgccggcgagt	tgcgtagacta	cctacgggta	acagtttctt	tatggcaggg	1320
tgaacgcag	gtcggccagcg	gcaccgcgcc	tttcggcggt	gaaattatcg	atgagcgtgg	1380
tggttatgcc	gatccggtca	cactacgtct	gaacgtcgaa	aaccggaaac	tgtggagcgc	1440
cgaatcccg	aatctctatc	gtgcgggtgt	tgaactgcac	accggcgacg	gcacgctgat	1500
tgaagcagaa	gcctgcgatg	tcggttttccg	cgagggtgcg	attgaaaatg	gtctgctgct	1560
gctgaacggc	aagccgttgc	tgattcgagg	cgtaaccgt	cacgagcatc	atcctctgca	1620
tggtcaggtc	atggatgagc	agacgatggt	gcaggatatc	ctgctgatga	agcagaacaa	1680
ctttaacgcc	gtgcgctgtt	cgcattatcc	gaaccatccg	ctgtggtaca	cgctgtgcga	1740
ccgctacggc	ctgtatgtgg	tggatgaagc	caatattgaa	accacgggca	tggtgccaat	1800
gaatcgtctg	accgatgatc	cgcgctgggt	accggcgatg	agcgaacgcg	taacgcgaat	1860
ggtgcagcgc	gatcgtaatc	acccgagtgt	gatcatctgg	tcgctgggga	atgaatcagg	1920
ccacggcgct	aatcacgacg	cgctgtatcg	ctggatcaaa	tctgtcgatc	cttcccgccc	1980
ggtgcagtat	gaaggcggcg	gagccgacac	cacggccacc	gatattattt	gcccgatgta	2040
cgcgcgcgtg	gatgaagacc	agcccttccc	ggctgtgccc	aaatggtcca	tcaaaaaatg	2100
gctttcgcta	cctggagaga	cgcgcccgtc	gaccccttgc	gaatacgccc	acgcgatggg	2160
taacagtcct	ggcggtttcg	ctaaatactg	gcaggcggtt	cgtcagtata	cccgtttaca	2220
ggcgcgcttc	gtctgggact	gggtggatca	gtcgtgtgatt	aaatatgatg	aaaacggcaa	2280
cccgtggtcg	gcttacggcg	gtgatttttg	cgatacgccg	aacgatcgcc	agttctgtat	2340
gaacgggtctg	gtctttgccg	accgcacgcc	gcatccagcg	ctgacgggaag	caaaacacca	2400
gcagcagttt	ttccagttcc	gtttatccgg	gcaaacaccatc	gaagtgaacca	gcgaatacct	2460
gttccgtcat	agcgataacg	agctcctgca	ctggatggtg	gcgctggatg	gtaagccgct	2520
ggcaagcggg	gaagtgcctc	tggatgtcgc	tccacaaggt	aaacagttga	ttgaactgcc	2580
tgaactaccg	cagccggaga	gcgcggggca	actctggctc	acagtacgcg	tagtgcaacc	2640

gaacgcgacc	gcatgggtcag	aagccggggca	catcagcgcc	tggcagcagt	ggcgtctggc	2700
ggaaaacctc	agtgtgacgc	tccccgcgcg	gtcccacgcc	atccccgcatc	tgaccaccag	2760
cgaaatggat	ttttgcatcg	agctgggtaa	taagcgttgg	caatttaacc	gccagtcagg	2820
ctttctttca	cagatgtgga	ttggcgataa	aaaacaactg	ctgacgccgc	tgccgcgatca	2880
gttcacccgt	gcaccgctgg	ataacgacat	tggcgtaagt	gaagcgaccc	gcattgaccc	2940
taacgcctgg	gtcgaacgct	ggaaggcggc	gggccattac	caggccgaag	cagcgttgtt	3000
gcagtgcacg	gcagatacac	ttgctgatgc	gggtgctgatt	acgaccgctc	acgcgtggca	3060
gcatcagggg	aaaaccttat	ttatcagccg	gaaaacctac	cggattgatg	gtagtggcca	3120
aatggcgatt	accggttgatg	ttgaagtggc	'gagcgataca	ccgcatccgg	cgcggattgg	3180
cctgaactgc	cagctggcgc	aggtagcaga	gcgggtaaac	tggctcggat	tagggccgca	3240
agaaaactat	cccgaaccgc	ttactgccgc	ctgttttgac	cgctgggac	tgccattgtc	3300
agacatgtat	accccgtagc	tcttcccag	cgaaaacggt	ctgcgctgcg	ggacgcgcga	3360
attgaattat	ggcccacacc	agtggcgcg	cgacttccag	ttcaacatca	gccgctacag	3420
tcaacagcaa	ctgatggaaa	ccagccatcg	ccatctgctg	cacgcggaag	aaggcacatg	3480
gctgaatate	gacggtttcc	atatggggat	tgggtggcgac	gactcctgga	gcccgtcagt	3540
atcggcgga	ttccagctga	gcgcgggtcg	ctaccattac	cagttgggtct	gggtgcgggg	3600
atccgtcgac	taaggccaaa	gagtcctaatt	ttgtttcatc	aatgggttat	aacatatggg	3660
ttatattata	agtttgtttt	aagtttttga	gactgataag	aatgtttcga	tcgaatatcc	3720
catagaacaa	caatagtatt	acctaattac	caagtcttaa	tttagcaaaa	atgttattgc	3780
ttatagaaaa	aataaattat	ttatttgaaa	tttaaagtca	acttgtcatt	taatgtcttg	3840
tagacttttg	aaagtcttac	gatacaatta	gtatctaata	tacatggggt	cattctacat	3900
tctatattag	tgatgatttc	tttagctagt	aatacatttt	aattatattc	ggctttgatg	3960
attttctgat	tttttccgaa	cggattttcg	tagacccttt	cgatctcata	atggctcatt	4020
ttattgcgat	ggacgggtcag	gagagctcca	cttttgaatt	tctgttcgca	gacaccgcat	4080
ttgtagcaca	tagccggggac	atccgggttg	gggagatttt	ccagtctctg	ttgcaattgg	4140
ttttcgggaa	tgcgttgacg	gcgcatacgc	tctatatacct	ccgaacggcg	ctgggtgacc	4200
ctagcattta	cataaggatc	agcagcaaaa	tttgccctcg	cttcattgcc	cggaaatcaca	4260
gcaatcagat	gtccctttcg	gttacgatgg	atattcaggt	gcgaaccgca	cacaaagctc	4320
tcgccgcaca	ctccacactg	atatgggtcg	tcgccctgtg	gcgccgcata	tggatcttaa	4380
ggtcggttga	ctgcacaaaag	ctcttgctgc	acatttttga	ggagtacggc	ctttgaccgc	4440
tgtgcaatcg	catgtgtcgc	gccagcttgt	tctgcgaaat	aaacttcttg	gagcagatgc	4500
ggccgcccgg	ggtgggcgaa	gaactccagc	atgagatccc	cgcgctggag	gatcatccag	4560
ccggcgctcc	ggaaaacgat	tccgaagccc	aacctttcat	agaaggcggc	ggtggaatcg	4620
aaatctcggt	atggcaggtt	gggcgtcgct	tggtcgggtca	tttcgaaccc	cagagtcccg	4680
ctcagaagaa	ctcgtcaaga	aggcgataga	aggcgatgcg	ctgcgaatcg	ggagcggcga	4740
taccgtaaag	cacgaggaag	cggtcagccc	atccgcgcgc	aagctcttca	gcaatatcac	4800
gggtagccaa	cgctatgtcc	tgatagcggg	ccgccacacc	cagccggcca	cagtcgatga	4860
atcgagaaaa	gcggccattt	tccaccatga	tattcggcaa	gcaggcatcg	ccatgggtca	4920
cgacgagatc	ctcgccgtcg	ggcatgcgcg	ccttgagcct	ggcgaacagt	tcggctggcg	4980
cgagccctcg	atgctcttcg	tccagatcat	cctgatcgac	aagaccggct	tccatccgag	5040
tacgtgctcg	ctcgatgcga	tgtttcgctt	ggtggtcgaa	tgggcaggta	gccggatcaa	5100
gcgtatgcag	ccgccgcatt	gcatacgcca	tgatggatac	tttctcggca	ggagcaagg	5160
gagatgacag	gagatcctgc	cccggaactt	cgcccaatag	cagccagtc	cttcccgcct	5220
cagtgacaac	gtcagacaca	gctgcgcaag	gaacgcccgt	cgtggccagc	cacgatagcc	5280
gcgctgcctc	gtcctgcagt	tcattcaggg	caccggacag	gtcgggtctg	acaaaaagaa	5340
ccggggcgccc	ctgcgctgac	agccgggaaca	cggcgccatc	agagcagccg	attgtctgtt	5400
gtgcccagtc	atagccgaat	agcctctcca	cccaagcggc	cggagaacct	gcgtgcaatc	5460
catcttgttc	aatcatgcga	aacgatcttc	atcctgtctc	ttgatcagat	cttgatcccc	5520
tgcgccatca	gataccttggc	ggcaagaaag	ccatccagtt	tactttgcag	ggcttcccaa	5580
ccttaccaga	gggcgcccc	gctggcaatt	ccggttcgct	tgctgtccat	aaaaccgcgc	5640
agtctagcta	tcgccatgta	agcccactgc	aagctacctg	ctttctcttt	gcgcttgctg	5700
tttcccttgt	ccagatagcc	cagtagctga	cattcatccg	gggtcagcac	cgtttctgcg	5760
gactggcttt	ctacgtgttc	cgcttccctt	agcagccctt	gcgccctgag	tgcttgccgc	5820
agcgtgaagc	taattcatgg	ttataaattt	ttgttaaate	agctcatttt	ttaaccaata	5880
ggccgaaatc	ggcaaaatcc	aaaagaatag	cccagagatag	ggttgagtgt		5940
tgttccagtt	tggaaacaaga	gtccactatt	aaagaacgtg	gactccaacg	tcaaagggcg	6000
aaaaaccgtc	tatcagggcg	atggccggat	cagcttatgc	gggtgtgaaat	accgcacaga	6060
tcgtaagga	gaaaataaccg	catcagggcg	tcttccgctt	cctcgctcac	tgactcgctg	6120

```

cgctcggtcg ttcggtcgcg gcgagcggtg tcagctcact caaaggcggt aatacggtta 6180
tccacagaat caggggataa cgcaggaaag aacatgtgag caaaaggcca gcaaaaggcc 6240
aggaaccgta aaaaggccgc gttgctggcg tttttccata ggctccgccc ccctgacgag 6300
catcacaaaa atcgacgctc aagtcagagg tggcgaaacc cgacaggact ataaagatac 6360
caggcggttc cccctggaag ctccctcgctg cgctctcctg ttccgacctt gccgcttacc 6420
ggatacctgt ccgcctttct cccctcgga agcgtggcg tttctcatag ctcacgctgt 6480
aggtatctca gttcggtgta ggtcggttcgc tccaagctgg gctgtgtgca cgaaccccc 6540
gttcagcccg accgctgcgc cttatccggt aactatcgtc ttgagtccaa cccggttaaga 6600
cacgacttat cgccactggc agcagccact ggtaacagga ttagcagagc gaggtatgta 6660
ggcggtgcta cagagttctt gaagtgggtg cctaactacg gctacactag aaggacagta 6720
tttggatatc gcgctctgct gaagccagtt accttcggaa aaagagttgg tagctcttga 6780
tccggcaaac aaaccaccgc tggtagcggc gggtttttgt ttgcaagcag cagattacgc 6840
gcagaaaaaa aggatctcaa gaagatcctt tgatcttttc ttactgaacg gtgatcccca 6900
ccggaattgc ggccgcggaa ttctcatggt tgacagctta tcacgataa gctggcgct 6960
ctagaactag tgttccaca atggttaatt cgagctcgcc cggggatcta attcaattag 7020
agactaattc aattagagct aattcaatta ggatccaagc ttatcgattt cgaacctcg 7080
accgccggag tataataga ggcgcttcgt ctacggagcg acaattcaat tcaacaagc 7140
aaagtgaaca cgtcgctaag cgaaagctaa gcaaataaac aagcgcagct gaacaagcta 7200
aacaatcggg gtaccgctag agtcgacggt acgatccacc ggtcgccacc atggtgagca 7260
agggcgagga gctgttcacc ggggtgggtgc ccactcctggt cgagctggac ggcgacgtaa 7320
acggccacaa gttcagcggtg tccggcgagg gcgagggcga tgccacctac ggcaagctga 7380
cctggaagtt catctgcacc accggcaagc tgcccggtgc ctggccacc ctcgtgacca 7440
cctgacctg gggcggtgcag tgcttcagcc gctaccccgca ccacatgaag cagcacgact 7500
tcttcaagtc cgccatgccc gaaggctacg tccaggagcg caccatcttc ttcaaggacg 7560
acggcaacta caagaccgcg gccgaggtga agttcgaggg cgacaccctg gtgaaccgca 7620
tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac aagctggagt 7680
acaactagat cagccacaac gatccgccac cgcgcgacaa gcagaagaac ggcataagg 7740
ccaacttcaa gatccgccac ccccatcggc gacggccccg tgctgctgcc cgacaaccac gaccactacc 7800
agcagaacac cctgagcaaa gaccccaacg agaagcgcgca tcacatggtc ctgctggagt 7860
cccagtcgcg cgccgggatc actctcgga tggacgagct gtacaagtaa agcgcccg 7920
tcgtgaccgc ataactagcc ataccacatt tgtagaggtt ttacttgctt taaataaacct 8040
actctagatc cccctgaacc taaaacataa aatgaatgca attgttggtt ttaacttggt 8100
cccacacctc tataatggtt acaaataaag caatagcatc acaaatttca caaataaagc 8160
tattgcagct ctgcattcta gttgtggttt gtccaaactc atcaatgtat cttaaagctt 8220
atctgatacg gtacggcgcg cctaggccgg ccgattggat cccatgcgtc aattttacgc 8280
atgattatct ttaacgtacg tcacaatatg attatcttct tagggttaat ctagctgcgt 8340
gttctgcagc gtgtcgagca tcttcatctg ctccatcacg ctgtaaaaca catttgacc 8400
gagagtctgc ccgtcctcca cgggttcaaa aacgtgaatg aacgaggcg ccccgcggg 8460
taactcacgg ggtatccatg tccatttctg cggcatccag ccaggatacc cgtcctcgct 8520
gacgtaatat cccagcgccg caccgctgtc attaatctgc acaccggcac ggcagttccg 8580
gctgtcgccg gtattgttcg ggttgcgtgat gcgcttcggg ctgaccatcc ggaactgtgt 8640
ccggaaaagc cgcgacgaac tggatcccca ggtggcctga acgaacagtt caccgttaaa 8700
ggcgtgcatg gccacacctt cccgaatcat catggtaaac gtgcgttttc gctcaacgtc 8760
aatgcagcag cagtcactct cggcaaaactc tttccatgcc gcttcaacct cgcgggaaaa 8820
ggcacgggct tcttctctcc cgatgcccag atagcgccag cttgggcat gactgagccg 8880
gaaaaaagac ccgacgatat gatcctgatg cagctagatt aaccctagaa agatagctg 8940
cgtaaaattg accgatggga tccccgggc tgcaggaatt cgatatcaag cttatcgata 9000
ccgtcgaagc tt

```

9012

<210> 50
 <211> 9013
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: p(PZ)-Bac-EGFP

sequence

```

<400> 50
accgaagtat acacttaaat tcagtgcacg tttgcttgtt gagaggaaag gttgtgtgcg 60
gacgaatttt tttttgaaaa cattaaccct tacgtggaat aaaaaaaat gaaatattgc 120
aaattttgct gcaaagctgt gactggagta aaattaattc acgtgccgaa gtgtgctatt 180
aagagaaaat tgtgggagca gagccttggg tgcagccttg gtgaaaactc ccaaatttgt 240
gatacccact ttaatgattc gcagtggaaag gctgcacctg caaaagggtca gacattttaa 300
aggaggcgac tcaacgcaga tgccgtacct agtaaaagtga tagagcctga accagaaaaag 360
ataaaaagaag gctataccag tgggagtaca caaacagagt aagtttgaat agtaaaaaaa 420
atcatttatg taaacaataa cgtgactgtg cgttaggtcc tgttcattgt ttaatgaaaa 480
taagagcttg agggaaaaaa ttcgtacttt ggagtacgaa atgcgtcgtt tagagcagca 540
gccgaattca ctggccgtcg ttttacaacg tcgtgactgg gaaaaccctg gcgttaccca 600
acttaatcgc cttgcagcac atcccccttt ccgcagctgg cgtaatagcg aagaggcccg 660
caccgatcgc ccttcccaac agttgcgcag cctgaatggc gaatggcgtt ttgcctgggt 720
tccggcacca gaagcgggtgc cggaaagctg gctggagtgc gatcttctct aggccgatag 780
tgtcgtcgtc cctcaaaact ggcagatgca cggttacgat gcgcccatct acaccaacgt 840
aacctatccc attacgggtca atccgcggtt tgttcccacg gagaatccga cgggttgtta 900
ctcgtccaca tttaatgttg aactcggcgt ttcatctgtg gctacaggaa ggccagacgc gaattatttt 960
tgatggcggt ttgccgtctg aatttgacct gagcgcattt cgctgggtcg gttacggcca 1020
ggacagtcgt atgggtctgc gttggagtga cggcagttat ctggaagatc aggatattgt 1140
cctcgcgggt agcattttcc gtgacgtctc gttgctgcat aaaccgacta cacaatcag 1200
gcggtatgag gttgccactc tgccgtgacta tgatttcagc cgcgctgtac tggaggctga 1260
cgatttccat gtcgccagcg gcaccgcgcc tttcggcggt acagtttctt tatggcaggg 1320
agttcagatg tgccggcgagt gcaccgcgcc tttcggcggt gaaattatcg atgagcgtgg 1380
tgaaacgcag gatcgcgtca cactacgtct gtgcgggtgg tgaactgcac accgccgacg gcacgctgat 1440
cgaaatcccg aatctctatc gcctgcgatg tccggtttccg cgaggtgcgg attgaaaatg gtctgctgct 1500
tgaagcagaa gcctgcgatg agacgatggg gcaggatata ctgctgatga agcagaacaa 1680
gctgaacggc aagccgttgc tgattcgagg cgcattatcc gaaccatccg ctgtggtaca cgtgtgcga 1740
tggtcagggt atggatgagc agcattatcc caatatgaa acccacggca tggtgccaat 1800
ccttaacgcc gtgctgtgtt tggatgaagc accggcgatg agcgaacgcg taacgcgaat 1860
ccacggcgct aatcacgacg cgctgtatcg gatcatctgg tgcgtgggga atgaatcagg 1920
gggtgcagtat gaaggcggcg gagccgacac cagggccacc gatattattt gcccgatgta 2040
cgcgcgcggt catgaagacc agcccttccc ggctgtgccg aaatggtcca tcaaaaaaat 2100
gctttcgtca cctggagaga cgcgcccgtt gatcctttgc gaatacggcc acgcgatggg 2160
taacagctct ggccgtttcg ctaaaactgc gcaggcgttt cgtcagtatc cccgtttaca 2220
gggcggtctc gctctgggact ggggtggatca gtcgctgatt aaatatgatg aaaacggcaa 2280
cccgtgggtc gcttacggcg gtgatttttg cgatacgccg aacgatcgcc agttctgtat 2340
gaacggtctg gtcttttgccg accgcacgce gcatccagcg ctgacggaag caaaacacca 2400
gcagcagttt ttccagttcc gtttatccgg gcaaaccatc gaagtgaaca gcgaatacct 2460
gttccgtcat agcgataacg agctcctgca ctggatgggt gcgctggatg gtaagccgct 2520
ggcaagcggg gaagtgcctc tggatgtcgc tccacaaggt aaacagttga ttgaactgcc 2580
tgaactaccg cagccggaga ggcgcccggc actctggctc acagtacgcg tagtgcaacc 2640
gaacgcgacc gcatgggtcag aagccgggca catcagcgcc tggcagcagt ggcgtctggc 2700
ggaaaaccte agtgtgacgc tccccgcgcg gtcccacgcc atcccgcatc tgaccaccag 2760
cgaaatggat ttttgcatcg agctgggtaa taagcgttgg caatttaacc gccagtcagg 2820
ctttctttca cagatgtgga ttggcgataa aaaacaactg ctgacgcgcg tgcgcgatca 2880
gttcacccgt gcaccgctgg ggaagggcggc gggcgattac caggccgaag gcattgacct 2940
taacgccttg gtcgaacgct ttgctgatgc ggtgctgatt acgaccgctc acgctgggca 3060
gcagtgcacg gcagatacac aaaaccttat accgttgatg ttgaagtggc gagcgatata ccgcattccg cgcggtattg 3120
gcatcagggg aaacacctat aggttagcga gcggtgaaac tggctcggat tagggccgca 3240
aatggcgatt accgttgatg aggttagcga ctgttttgac cgctgggata tgccattgtc 3300
agaaaactat cccgaccgcc ttactgccgc

```

agacatgtat	accccgtagc	tcttcccgag	cgaaaacggt	ctgcgctgcg	ggacgcgcga	3360
attgaattat	ggccacacac	agtggcgcg	cgacttccag	ttcaacatca	gccgctacag	3420
tcaacagcaa	ctgatggaaa	ccagccatcg	ccatctgctg	cacgcggaag	aaggcacatg	3480
gctgaatatc	gacgggtttcc	atatggggat	tgggtggcgac	gactcctgga	gcccgtcagt	3540
atcggcgga	ttccagctga	gcgccggctg	ctaccattac	cagttgggtct	gggtgctgggg	3600
atccgtcgac	taaggccaaa	gagtcctaatt	tttgttcatc	aatgggttat	aacatatggg	3660
ttatattata	agtttgtttt	aagtttttga	gactgataag	aatgtttcga	tcgaatattc	3720
catagaacaa	caatagtatt	acctaattac	caagtcttaa	tttagcaaaa	atgtaattgc	3780
ttatagaaaa	aataaattat	ttatttgaaa	tttaaagtca	acttgtcatt	taatgtcttg	3840
tagacttttg	aaagtcttac	gatacaatta	gtatctaata	tacatgggtt	cattctacat	3900
tctatattag	tgatgatttc	tttagctagt	aatacatttt	aattatatte	ggctttgatg	3960
attttctgat	tttttccgaa	cggatttttc	tagacccttt	cgatctcata	atggctcatt	4020
ttattgcat	ggacgggtcag	gagagctcca	cttttgaaat	tctgttcgca	gacaccgcat	4080
ttgtagcaca	tagccgggac	atccggtttg	gggagatttt	ccagtctctg	ttgcaattgg	4140
ttttcgggaa	tgcgtttgcag	gcgcatacgc	tctatatcct	ccgaacggcg	ctggttgacc	4200
ctagcattta	cataaggatc	agcagcaaaa	tttgccctctg	cttcattgcc	cggaaatcac	4260
gcaatcagat	gtcccttttcg	gttacgatgg	atattcaggt	gcgaaccgca	cacaaagctc	4320
tcgcgcgaca	ctccacactg	atatggctgc	tcgcccctgtg	gcgcccgcata	tggatcttaa	4380
ggtcggttga	ctgcacaaag	ctcttgctgc	acattttgca	ggagtacggc	ctttgacccg	4440
tgtgcaatcg	catgtgtcgc	gccagcttgt	tctgcgaaat	aaacttcttg	gagcagatgc	4500
ggcgcgcccg	ggtggggcgaa	gaactccagc	atgagatccc	cgcgctggag	gatcatccag	4560
ccggcgctccc	ggaaaacgat	tccgaagccc	aacctttcat	agaaggcggc	ggtggaatcg	4620
aaatctcgtg	atggcaggtt	gggcgtcgct	tggctcggta	tttcgaaccc	cagagtcccg	4680
ctcagaagaa	ctcgtcaaga	aggcgataga	aggcgatgcg	ctgcgaatcg	ggagcggcga	4740
taccgtaaa	cacgaggaag	cggtcagccc	atctgcgccc	aagctcttca	gcaatatcac	4800
gggtagccaa	cgctatgtcc	tgatagcggt	ccgccacacc	cagccggcca	cagtcgatga	4860
atccagaaaa	gcggccattt	tccaccatga	tattcggcaa	gcaggcatcg	ccatgggtca	4920
cgacgagatc	ctgcgcgtcg	ggcatgcgcg	ccttgagcct	ggcgaaacag	tcggctggcg	4980
cgagcccttg	atgctcttcg	tccagatcat	cctgatcgac	aagaccggt	tccatccgag	5040
tacgtgctcg	ctcgatgcga	tgtttcgctt	ggtgggtcgaa	tgggcaggta	gccggatcaa	5100
gcgtatgcag	ccgcgcgcat	gcacagccca	tgatggatac	tttctcggca	ggagcaaggt	5160
gagatgacag	gagatcctgc	cccggcaact	cgcccaatag	cagccagtc	cttcccgtt	5220
cagtacaac	gtcgagcaca	gctgcgcaag	gaacgcccgt	cgtggccagc	cacgatagcc	5280
gcgctgcctc	gtcctgcagt	tcattcaggg	caccggacag	gtcggctctt	acaaaaagaa	5340
ccgggcgccc	ctgcgctgac	agccggaaca	cggcgccatc	agagcagccg	attgtctggt	5400
gtgccagtc	atagccgaat	agcctctcca	cccaagcggc	cggagaacct	gcgtgcaatc	5460
catcttgttc	aatcatgcga	aacgatcctc	atcctgtctc	ttgatcagat	cttgatcccc	5520
tgcgccatca	gacccctggc	ggcaagaaag	ccatccagtt	tactttgcag	ggcttcccaa	5580
ccttaccaga	gggcgcceca	gctggcaatt	ccggttcgct	tgctgtccat	aaaaccgccc	5640
agtctageta	tcgccatgta	agcccactgc	aagctacctg	ctttctcttt	gcgcttgctg	5700
tttcccttgt	ccagatagcc	cagtagctga	cattcatccg	gggtcagcac	cgtttctgcg	5760
gactggcttt	ctacgtgttc	cgcttccctt	agcagccctt	gcgcccgtg	tgcttgccgc	5820
agcgtgaagc	taattcatgg	ttataaattt	ttgttaaate	agctcatttt	ttaaccaata	5880
ggccgaaatc	ggcaaaaatc	cttataaate	aaaagaatag	cccagagatg	ggttgagtgt	5940
tggtccagtt	tggaaacaaga	gtccactatt	aaagaacgtg	gactccaacg	tcaaagggcg	6000
aaaaaccgtc	tatcagggcg	atggccggat	cagcttatgc	ggtgtgaaat	accgcacaga	6060
tgcgtaagga	gaaaataacc	catcagggcg	tcttccgctt	cctcgctcac	tgactcgctg	6120
cgtccggtcg	ttcggtcgcg	gcgagcggta	tcagctcact	caaaggcggg	aatacggtta	6180
tccacagaat	caggggataa	cgcaggaaag	aacatgtgag	caaaaggcca	gcaaaaggcc	6240
aggaaccgta	aaaaggccgc	gttgctggcg	tttttccata	ggctccgccc	ccctgacgag	6300
catcacaaaa	atcgagctc	aagtcagagg	tggcgaaacc	cgacaggact	ataaagatac	6360
cagggcgttt	cccctggaag	ctccctcgtg	cgtctcctcg	tccgacctt	gccgcttacc	6420
ggatacctgt	ccgcctttct	cccttcggga	agcgtggcg	tttctcatag	ctcacgctgt	6480
aggtatctca	gttcgggtgta	ggtcggttcg	tccaaagctg	gctgtgtgca	cgaaccccc	6540
gttcagcccg	accgctgcgc	cttatccggt	aactatcgte	ttgagtccaa	cccggtaaga	6600
cacgacttat	cgccactggc	agcagccact	ggtaacagga	ttagcagagc	gaggtatgta	6660
ggcgggtgcta	cagagttctt	gaagtgttgg	cctaactacg	gctacactag	aaggacagta	6720
tttggtatct	gcgctctgct	gaagccagtt	accttcggaa	aaagagttgg	tagctcttga	6780


```

tccggcaaac aaaccaccgc tggtagcggc gggtttttgt ttgcaagcag cagattacgc 6840
gcagaaaaaa aggatctcaa gaagatcctt tgatcttttc ttactgaacg gtgatcccca 6900
ccggaattgc ggccgcggaa ttctcatgtt tgacagetta tcatcgataa gctggccgct 6960
ctagaactag tgttcccaca atggttaatt cgagctcgcc cggggatcta attcaattag 7020
agactaattc aattagagct aattcaatta ggatccaagc ttatcgattt cgaaccctcg 7080
accgccggag tataaataga ggcgcttcgt ctacggagcg acaattcaat tcaaacaagc 7140
aaagtgaaca cgtcgctaag cgaaagctaa gcaataaac aagcgcagct gaacaagcta 7200
aacaatcggg gtaccgctag agtcgacggg acccggggcc cgggatccac cggctgccac 7260
catggtgagc aaggcgaggg agctgttcac cggggtggtg cccatcctgg tcgagctgga 7320
cggcgacgta aacggccaca agttcagcgt gtccggcgag ggcgagggcg atgccacct 7380
cggcaagctg accctgaagt tcatctgcac caccggcaag ctgcccgtgc cctggccacc 7440
cctcgtgacc accctgacct acggcggtgca gtgcttcagc cgctaccccc accacatgaa 7500
gcagcacgac ttcttcaagt ccgccatgcc cgaaggctac gtccaggagc gcaccatctt 7560
cttcaaggac gacggcaact acaagaccgg cgccgaggtg aagttcgagg gcgacaccct 7620
ggtgaaccgc atcgagctga agggcatcga cttcaaggag gacggcaaca tcctggggca 7680
caagctggag tacaactaca acagccacaa cgtctatata atggccgaca agcagaagaa 7740
cggcatcaag gtgaacttca agatccgcca caacatcgag gacggcagcg tgcagctcgc 7800
cgaccactac cagcagaaca cccccatcgg cgacggcccc gtgctgctgc ccgacaacca 7860
ctacctgagc acccagtcgg ccttgagcaa agaccccaac gagaagcgcg atcacatggt 7920
cctgctggag ttctgtagcg ccgcccggat cactctcggc atggacgagc tgtacaagta 7980
aagcggccgc gactctagat cataatcagc cataccacat ttgtagaggt tttacttgct 8040
ttaaaaaacc tcccacacct cccctgaac ctgaaacata aaatgaatgc aattgtgtt 8100
gttaacttgt ctttttttct ttataatggt tacaataaaa gcaatagcat caaaaatttc 8160
acaaataaag ctttttttct actgcattct gcctagtgga tgtccaaact catcaatgta 8220
tcttaaagct tatcgatacg cgtacggcgc gcttagtgga tcccatgctg caattttacg 8280
catgattatc tttaacgtac gtcacaatat gattatcttt ctagggttaa tctagctgcg 8340
tgttctcgag cgtgtcgagc atcttcatct gctccatcac gctgtaaaac acatttgac 8400
cgcgagtcgt ccgctcctcc acgggttcaa aaacgtgaat gaacgagggc cgcccgcgg 8460
gtaactcacg gggatatccat gtccatttct gcggcattca gccaggatac ccgtcctcgc 8520
tgacgtaata tcccagcgcc gcaccgctgt cattaatctg cacaccggca cggcagttcc 8580
ggctgtcgcc ggtattgttc gggttgctga tgcgcttcgg gctgaccatc cggaaactgtg 8640
tccggaaaag ccgcgacgaa ctgggtatccc aggtggcctg aacgaacagt tcaccgttaa 8700
aggcgtgcat ggccacacct tcccgaatca tcatggtaaa cgtgcgtttt cgctcaacgt 8760
caatgcagca gcagtcattc tcggcaaaact ctttccatgc cgcttcaacc tcgcgggaaa 8820
aggcacgggc ttcttctctc ccgatgcccc gatagcgcca gcttgggcca tgactgagcc 8880
ggaaaaaaga cccgacgata tgatcctgat gcagctagat taaccctaga aagatagtct 8940
gcgtaaaatt gacgcatggg atcccccggg ctgcaggaat tcgatatcaa gcttatcgat 9000
accgtcgaag ctt

```

9013

<210> 51
 <211> 4951
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: "pXL-Bac-EYFP
 sequence

```

<400> 51
ctaaattgta agcggttaata ttttggtaaa attcgcgtta aatttttgtt aaatcagctc 60
attttttaac caataggccg aaatcggcaa aatcccttat aaatcaaaaag aatagaccga 120
gatagggttg agtggtgttc cagtttgga caagagtcca ctattaaaga acgtggactc 180
caacgtcaaa gggcgaaaaa ccgtctatca gggcgatggc ccactacgtg aaccatcacc 240
ctaataaagt tttttggggt cgaggtgccc taaagcacta aatcggaacc ctaaaggagg 300
ccccgattt agagcttgac ggggaaagcc ggcgaacgtg gcgagaaagg aagggaagaa 360
agcgaagga gcggcgctta gggcgctggc aagtgtagcg gtcacgctgc gcgtaaccac 420
cacaccgcc gcgcttaatg cgccgctaca gggcgcgctc cattcgccat tcaggctgcg 480

```


caactgttgg	gaagggcgat	cggtgcgggc	ctcttcgcta	ttacgccagc	tggcgaaagg	540
gggatgtgct	gcaagggcgat	taagttgggt	aacgccaggg	ttttcccagt	cacgacgttg	600
taaaacgacg	gccagtgagc	gcgcccgcg	ggtaactcac	ggggatatcca	tgtccatttc	660
tgcggcatcc	agccaggata	cccgtcctcg	ctgacgtaat	atcccagcgc	cgcaccgctg	720
tcattaatct	gcacaccggc	acggcagttc	cggctgtcgc	cgggtattgtt	cgggttgctg	780
atgcgcttcg	ggctgacct	ccggaactgt	gtccggaaaa	gccgcgacga	actggtatcc	840
cagggtggcct	gaacgaacag	ttcaccgtta	aaggcgtgca	tggccacacc	ttcccgaatc	900
atcatggtaa	acgtgcgttt	tcgctcaacg	tcaatgcagc	agcagtcate	ctcggcaaac	960
tctttccatg	ccgcttcaac	ctcgcgggaa	aaggcacggg	cttcttcctc	cccgatgccc	1020
agatagcgcc	agcttggggc	atgactgagc	cggaaaaaag	acccgacgat	atgatcctga	1080
tgcagctaga	ttaaccctag	aaagatagtc	tgcgtaaaaat	tgacgcata	tctaattaac	1140
cctcactaaa	gggaacaaaa	gctggagctc	caccgcgggtg	gcggccgctc	tagaactagt	1200
gttcccacaa	tgggttaattc	gagctcgccc	ggggatctaa	ttcaattaga	gactaattca	1260
attagagcta	attcaattag	gatccaagct	tatcgatttc	gaaccctcga	ccgcccggagt	1320
ataaatagag	gcgcttcgct	tacggagcga	caattcaatt	caaacaagca	aagtgaacac	1380
gtcgctaagc	gaaagctaag	caaataaaca	agcgcagctg	aacaagctaa	acaatcgggg	1440
taccgctaga	gtcgcagcta	cgatccaccg	gtcgccacca	tgggtgagcaa	gggcgaggag	1500
ctgttcaccg	gggtgggtgcc	catcctggct	gagctggacg	gcgacgtaaa	cggccacaag	1560
ttcagcgtgt	ccggcgaggg	cgaggcgat	gccacctacg	gcaagctgac	cctgaagttc	1620
atctgcacca	ccggcaagct	gcccgtgccc	tggcccaccc	tcgtgaccac	cttcgggtac	1680
ggcctgcagt	gcttcgcccc	ctaccccgac	cacatgaagc	agcacgactt	cttcaagttc	1740
gccatgcccc	aaggctacgt	ccaggagcgc	accatcttct	tcaaggacga	cggcaactac	1800
aagaccgcgc	ccgaggtgaa	gttcgagggc	gacaccctgg	tgaaccgcat	cgagctgaag	1860
ggcatcgact	tcaaggagga	cggaacatc	ctggggcaca	agctggagta	caactacaac	1920
agccacaacg	tctatatcat	ggccgacaag	cagaagaacg	gcatcaaggt	gaacttcaag	1980
atccgccaca	acatcgagga	cggcgagcgt	cagctcgccg	accactacca	gcagaacacc	2040
cccacggcg	acggccccgt	gctgctgccc	gacaaccact	acctgagcta	ccagtcgcgc	2100
ctgagcaaa	accccaacga	gaagcgcgat	cacatggtcc	tgctggagtt	cgtagaccgc	2160
gccgggatca	ctctcggc	ggacgagctg	tacaagttaa	gcggccgcga	ctctagatca	2220
taatcagcca	taccacattt	gtagagggtt	tacttgcttt	aaaaaacctc	ccacacctcc	2280
ccctgaacct	gaaacataaa	atgaatgcaa	ttgttgttgt	taacttgttt	attgcagctt	2340
ataatgggta	caaataaagc	aatagcatca	caaatttcac	aaataaagca	tttttttcac	2400
tgcattctag	ttgtgggttg	tccaaactca	tcaatgtatc	ttaaagctta	tcgatacgcg	2460
tacggcgcg	ctaggcacta	gtggatcccc	cggcgtgcag	gaattcgata	tcaagcttat	2520
cgataccgct	gacctcgagg	gggggcccgg	taccacattc	gccctatagt	gagtcgtatt	2580
aagatcacgc	gtagatccat	gcgtcaattt	tacgcatgat	tatctttaac	gtacgtcaca	2640
atatgattat	ctttctaggg	ttaatctagc	tgcgtgttct	gcagcgtgtc	gagcatcttc	2700
atctgctcca	tcacgctgta	aaacacattt	gcaccgcgag	tctgcccgtc	ctccacgggt	2760
tcaaaaacgt	gaatgaacga	ggcgcgcttg	gcgtaatcat	ggtcatagct	gtttcctgtg	2820
tgaattgttt	atccgctcac	aattccacac	aacatacgag	ccggaagcat	aaagtgtaaa	2880
gcctgggggt	cctaattgag	gagctaactc	acattaattg	cgttgcgctc	actgcccgtc	2940
ttccagtcgg	gaaacctgtc	gtgccagctg	cattaatgaa	tcggccaacg	cgcggggaga	3000
ggcggtttgc	gtattggggc	ctcttcgctc	tcctcgctca	ctgactcgct	gcgctcggtc	3060
gttcggctgc	ggcgagcggt	atcagctcac	tcaaaaggcg	taatacgggt	atccacagaa	3120
tcaggggata	acgcaggaaa	gaacatgtga	gcaaaaaggc	agcaaaaaggc	caggaaacct	3180
aaaaaggccg	cgttgctggc	gtttttccat	aggctccgcc	cccctgacga	gcatcacaaa	3240
aatcgacgct	caagtccagag	gtggcgaaac	ccgacaggac	tataaagata	ccaggcgttt	3300
ccccctggaa	gctccctcgt	gcgctctcct	gttccgaccc	tgcgcttac	cggataacctg	3360
tcgccttttc	tcccttcggg	aagcgtggcg	ctttctcata	gctcacgctg	taggtatctc	3420
agttcggtgt	aggtcggttc	ctccaagctg	ggctgtgtgc	acgaaccccc	cgttcagccc	3480
gaccgctgcg	ccttatccgg	taactatcgt	cttgagtoaa	acccggtaag	acacgactta	3540
tcgccactgg	cagcagccac	tggtaacagg	attagcagag	cgaggtatgt	aggcggtgct	3600
acagagttct	tgaagtgggt	gcctaactac	ggctacacta	gaaggacagt	atttggtatc	3660
tgcgctctgc	tgaagccagt	taccttcgga	aaaagagttg	gtagctcttg	atccggcaaa	3720
caaaccacgc	ctggtagcgg	tgggtttttt	gtttgcaagc	agcagattac	gcgcagaaaa	3780
aaaggatctc	aagaagatcc	tttgatcttt	tctacggggg	ctgacgctca	gtggaacgaa	3840
aactcacggt	aagggatttt	ggtcatgaga	ttatcaaaaa	ggatcttcac	ctagatcctt	3900
ttaaattaaa	aatgaagttt	taaatcaatc	taaagtatat	atgagtaaac	ttggtctgac	3960

```

agttaccaat gcttaatcag tgaggcacct atctcagcga tctgtctatt tegtccatcc 4020
atagttgcct gactccccgt cgtgtagata actacgatac gggaggggtt accatctggc 4080
cccagtgctg caatgatacc gcgagaccca cgctcaccgg ctccagattt atcagcaata 4140
aaccagccag ccggaagggc cgagcgcgaga agtggtcctg caactttatc cgcctccatc 4200
cagtcattta attgttgccg ggaagctaga gtaagtagtt cgccagttaa tagtttgccg 4260
aacgttggtg ccattgctac aggcacgtg gtgtcacgct cgtcgttttg tatggcttca 4320
ttcagctccg gttcccaacg atcaaggcga gttacatgat ccccatgtt gtgcaaaaaa 4380
gcggttagct ccttcgggtcc tccgacgtt gtcagaagta agttggccgc agtggtatca 4440
ctcatgggta tggcagcact gcataattct ctactgtca tgccatccgt aagatgcttt 4500
tctgtgactg gtgagtactc aaccaagtca ttctgagaat agtgatgctg gcgaccgagt 4560
tgctcttgcc cggcgtcaat acgggataat accgcgccac atagcagaac tttaaaagt 4620
ctcatcattg gaaaacgttc ttccggggcga aaactctcaa ggatcttacc gctgttgaga 4680
tccagttcga tgtaaccac tegtgcaccc aactgatctt cagcatcttt tactttcacc 4740
agcgtttctg ggtgagcaaa aacaggaagg caaaatgccg caaaaaaggg aataagggcg 4800
acacggaaat gttgaatact catactcttc ctttttcaat attattgaag catttatcag 4860
ggttattgtc tcatgagcgg atacatattt gaatgtattt agaaaaataa acaaataggg 4920
gttcgcgcga cttttccccg aaaagtgcc c 4951

```

<210> 52

<211> 4952

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pXL-Bac-EGFP sequence

<400> 52

```

ctaaattgta agcgttaata ttttggttaa attcgcgtta aatttttgtt aaatcagctc 60
attttttaac caataggccg aaatcggcaa aatcccttat aaatcaaaag aatagaccga 120
gatagggttg agtggtgttc cagtttgga caagagtcca ctattaaaga acgtggactc 180
caacgtcaaa gggcgaaaaa ccgtctatca gggcgatggc ccactacgtg aaccatcacc 240
ctaatacagt tttttgggtt cgaggtgccc taaagcacta aatcggaacc cttaaaggag 300
ccccgattt agagcttgac ggggaaagcc ggcgaaagtg gcgagaaagg aagggaagaa 360
agcgaaagga gcggcgctta gggcgctggc aagtgtagcg gtcacgctgc gcgtaaccac 420
cacaccggc gcgcttaatg cgcgcgtaca gggcgctgcc cattcgccat tcaggctgag 480
caactgttgg gaaggcgat cgggtgcccgc ctcttcgcta ttacgccagc tggcgaaagg 540
gggatgtgct gcaaggcgat taagtgggtt aacgccaggg tttcccagc cagcaggttg 600
taaaacgacg gccagtggag gcgcccgcgc ggtaactcac ggggtatcca tgtccatttc 660
tgccggcatcc agccaggata ccgcctctcg ctgacgtaat atcccagcgc cgcaccgctg 720
tcattaatct gcacaccggc acggcagttc cggctgtcgc cggatttgtt cgggttgctg 780
atgcgcttcg ggctgaccat ccggaactgt gtccggaaaa gccgcgacga actggatatc 840
caggtggcct gaacgaacag ttcaccgtta aaggcgtgca tggccacacc tcccgaatc 900
atcatggtaa acgtgcgttt tcgctcaacg tcaatgcagc agcagtcate ctcgcaaac 960
tctttccatg ccgcttcaac ctgcgggaa aaggcacggg cttcttcctc cccgatgccc 1020
agatagcgcc agcttgggcg atgactgagc cggaaaaaag acccgacgat atgatcctga 1080
tgcagctaga ttaaccctag aaagatagtc tgcgtaaaat tgacgcatga tctaattaac 1140
cctcactaaa gggaacaaaa gctggagctc caccgcggtg gcggccgctc tagaactagt 1200
gccgtacgcg tatcgataag cttaagata cattgatgag tttggacaaa ccacaactag 1260
aatgcagtga aaaaaatgct ttatttgtga aatttgtgat gctattgctt tatttgtaac 1320
cattataagc tgcaataaac aagttaacaa caacaattgc attcatttta tgtttcaggt 1380
tcaggggggag gtgtgggagg ttttttaaag caagtaaaac ctctacaaat gtggtatggc 1440
tgattatgat ctagagtcgc ggccgcttta cttgtacagc tcgtccatgc cgagagtgat 1500
cccgcgggc gtacgaact ccagcaggac catgtgatcg cgcttctcgt tgggtcttt 1560
gctcagggcg gactgggtgc tcaggtagtg gttgtcgggc agcagcacgg ggccgctgcc 1620
gatgggggtg ttctgtggt agtggtcggc gagctgcacg ctgccgtcct cgatgttgtg 1680
gcggatcttg aagttcacct tgatgccgtt cttctgcttg tcggccatga tatagacgtt 1740

```

gtggctgttg	tagttgtact	ccagcttgtg	ccccaggatg	ttgccgtcct	ccttgaagtc	1800
gatgcccttc	agctcgatgc	ggttcaccag	gggtgcgccc	tcgaacttca	cctcggcgcg	1860
ggctctgtag	ttgccgtcgt	ccttgaagaa	gatgggtgcg	tcctggacgt	agccttcggg	1920
catggcggac	ttgaagaagt	cgtgctgctt	catgtggtcg	gggtagcggc	tgaagcactg	1980
cacgccgtag	gtcaggggtg	tcacgagggg	gggccagggc	acgggcagct	tgccgggtgt	2040
gcagatgaac	ttcaggggtca	gcttgccgta	gggtggcatcg	ccctcgccct	cgccggacac	2100
gctgaacttg	tgcccggttta	cgtcgccgtc	cagctcgacc	aggatgggca	ccacccccgg	2160
gaacagctcc	tcgcccttgc	tcaccatggt	ggcgaccggg	ggatcccggg	cccgcggtac	2220
cgtcgactct	agcggtagcc	cgattgttta	gcttgttcag	ctgcgcttgt	ttatttgctt	2280
agctttcgct	tagcgacgtg	ttcactttgc	ttgtttgaat	tgaattgtcg	ctccgtagac	2340
gaagcgcttc	tattttatact	ccggcggtcg	agggttcgaa	atcgataagc	ttggatccta	2400
attgaattag	ctctaattga	attagtctct	aattgaatta	gatccccggg	cgagctcgaa	2460
ttaaccattg	tgggaacact	agtggatccc	ccgggctgca	ggaattcgat	atcaagctta	2520
tcgataccgt	cgacctcgag	ggggggcccc	gtacccaatt	cgccctatag	tgagtcgtat	2580
taagatcacg	cgtagatcca	tgcgtaaat	ttacgcatga	ttatctttaa	cgtacgtcac	2640
aatatgatta	tccttctagg	gttaatctag	ctgcgtgttc	tcgacgctgt	cgagcatctt	2700
catctgctcc	atcacgctgt	aaaacacatt	tgaccgcga	gtctgccgt	cctccacggg	2760
ttcaaaaacg	tgaatgaacg	aggcgcgctt	ggcgtaatca	tggatcatagc	tggttctcgt	2820
gtgaaattgt	tatccgctca	caattccaca	caacatacga	gccggaagca	taaagtgtaa	2880
agcctggggg	gcctaataag	tgagctaact	cacattaatt	gcgttgccgt	cactgcccgc	2940
tttccagtcg	ggaaacctgt	cgtgccagct	gcattaatga	atcgccaac	gcgcggggag	3000
aggcggtttg	cgtattgggc	gctcttccgc	ttcctcgctc	actgactcgc	tgcgctcggt	3060
cgttcgggtg	cgccgagcgg	tatcagctca	ctcaaaggcg	gtaatacggg	tatccacaga	3120
atcaggggat	aacgcaggaa	agaacatgtg	agcaaaaagg	cagcaaaaagg	ccaggaaccg	3180
taaaaaggcc	gcgttgctgg	cgtttttcca	taggctccgc	ccccctgacg	agcatcacaa	3240
aaatcgacgc	tcaagtcaga	gggtggcgaa	cccgacagga	ctataaaagt	accaggcggt	3300
tccccctgga	agctccctcg	tgcgctctcc	tggtccgacc	ctgccgctta	ccggatacct	3360
gtccgccttt	ctcccttcgg	gaagcgtggc	gctttctcat	agctcacgct	gtaggatatct	3420
cagttcggtg	taggtcggtt	gctccaagct	gggtgtgtg	cacgaacccc	ccgttcagcc	3480
cgaccgctgc	gccttatccg	gtaactatcg	tcttgagtcc	aaccgggtaa	gacacgactt	3540
atcgccactg	gcagcagcca	ctggtaacag	gattagcaga	gcgagggtatg	tagggcggtgc	3600
tacagagttc	ttgaagtggg	ggcctaacta	cggtacact	agaaggacag	tatttgggtat	3660
ctgcgctctg	ctgaagccag	ttaccttcgg	aaaaagagtt	ggtagctctt	gatccggcaa	3720
acaaaccacc	gctggtagcg	gtgggttttt	tggttgcaag	cagcagatta	cgcgagaaaa	3780
aaaaggatct	caagaagatc	ctttgatctt	ttctacgggg	ctgacgctc	agtggaaacga	3840
aaactcacgt	taagggaattt	tggtcatgag	attatcaaaa	aggatcttca	cctagatcct	3900
tttaaatata	aaatgaagtt	ttaaatcaat	ctaaagtata	tatgagtaaa	cttgggtctga	3960
cagttaccaa	tgcttaatac	gtgaggcacc	tatctcagcg	atctgtctat	ttcgttcatc	4020
catagttgcc	tgactccccg	tcgtgtagat	aactacgata	cgggaggggt	taccatctgg	4080
ccccagtgct	gcaatgatac	cgcgagaccc	acgctcaccg	gctccagatt	tatcagcaat	4140
aaaccagcca	gccggaaggg	ccgagcgcag	aagtggctct	gcaactttat	ccgcctccat	4200
ccagtctatt	aattggttgc	gggaagctag	agtaagtagt	tcgccagtta	atagtttgcg	4260
caacgttgtt	gccattgcta	caggcatcgt	gggtcacgc	tcgtcgtttg	gtatggcttc	4320
attcagctcc	ggttcccaac	gatcaaggcg	agttacatga	tcccccatgt	tgtgcaaaaa	4380
agcgggttagc	tccttcgggc	ctccgatcgt	tgtcagaagt	aagttggccg	cagtggttatc	4440
actcatgggt	atggcagcac	tgcataatct	tcttactgtc	atgccatccg	taagatgctt	4500
ttctgtgact	gggtgagtact	caaccaagtc	attctgagaa	tagtgtatgc	ggcgaccgag	4560
ttgctcttgc	ccggcgctcaa	taccgcgcca	taccgcgcca	catagcagaa	ctttaaaagt	4620
gctcatcatt	ggaaaacggt	cttcggggcg	aaaactctca	aggatcttac	cgctgttgag	4680
atccagttcg	atgtaaccca	ctcgtgcacc	caactgatct	tcagcatctt	ttactttcac	4740
cagcgtttct	gggtgagcaa	aaacaggaag	gcaaaaatgcc	gcaaaaaagg	gaataagggc	4800
gacacggaaa	tggtgaatac	tcatactctt	cctttttcaa	tattattgaa	gcatttatca	4860
gggttattgt	ctcatgagcg	gatacatatt	tgaatgtatt	tagaaaaata	aacaaatagg	4920
ggttccgcgc	acatttcccc	gaaaagtgcc	ac			4952

<210> 53

<211> 4941

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pXL-Bac-ECFP
sequence

<400> 53

```

ctaaattgta agcggttaata ttttggttaaa attcgcgtta aatttttgtt aaatcagctc 60
attttttaac caataggccg aaatcggcaa aatcccttat aaatcaaaaag aatagaccga 120
gatagggttg agtgttggtc cagtttgga caagagtcca ctattaaaga acgtggactc 180
caacgtcaaa gggcgaaaaa ccgtctatca gggcgatggc ccactacgtg aaccatcacc 240
ctaatcaagt tttttggggt cgaggtgccc taaagcacta aatcgggaacc ctaaagggag 300
ccccgatatt agagcttgac ggggaaagcc ggcgaacgtg gcgagaaagg aagggaaagg 360
agcgaaggga gcgggcgcta gggcgctggc aagtgtagcg gtcacgctgc gcgtaaccac 420
cacaccgccc gcgcttaatg cgcgcgtaca gggcgcgctc cattcgccat tcaggctgcg 480
caactgttgg gaagggcgat cgggtgcggc ctcttcgcta ttacgccagc tggcgaaagg 540
gggatgtgct gcaaggcgat taagtgggtt aacgcagggg tttcccagc cagcagcttg 600
taaaacgacg gccagtgagc gcgcccgcgc ggtaactcac ggggtatcca tgtccatttc 660
tgcggcatcc agccaggata ccgcctctcg ctgacgtaat atcccagcgc cgcaccgctg 720
tcattaatct gcacaccggc acggcagttc cggctgtgcg cgggtattgtt cgggttgctg 780
atgcgcttcg ggctgacctt cgggaactgt gtcggaaaaa gccgcgacga actgggtatcc 840
caggtggcct gaacgaacag ttcaccgtta aaggcgtgca tggccacacc ttcccgaatc 900
atcatggtaa acgtgcgttt tcgctcaacg tcaatgcagc agcagtcate ctcggaacac 960
tctttccatg ccgcttcaac ctgcgaggaa aaggcacggg ctctctcttc cccgatgccc 1020
agatagcgcc agcttggggc atgactgagc cggaaaaaag acccgacgat atgatcctga 1080
tgcagctaga ttaaccctag aaagatagtc tgcgtaaaat tgacgcatga tctaattaac 1140
cctcactaaa ggggaacaaa gctggagctc caccgcggtg gccgcgctc tagaactagt 1200
gttcccacaa tgggttaattc gagctcgccc ggggatctaa ttcaattaga gactaattca 1260
attagagcta attcaattag gatccaagct tatcgatttc gaaccctcga ccgcccggagt 1320
ataaatagag gcgcttcgct tacggagcga caattcaatt caaacaagca aagtgaacac 1380
gtcgctaaag gaaagctaag caaataaaca agcgcagctg aacaagctaa acaatcgggg 1440
taccgctaga tgcgacggtc cgatccaccg gtcgccacca tgggtgagcaa gggcgaggag 1500
ctgttcaccg ggggtgggtgcc catcctgggtc gagctgggacg gcgacgtaaa cggccacaag 1560
ttcagcgtgt ccggcgaggg cgagggcgat gccacctacg gcaagctgac cctgaagttc 1620
atctgcacca ccggcaagct gcccggtgcc tggcccaccc tcgtgaccac cctgaactgg 1680
ggcgtgcagt gcttcagccg ctaccccgac cacatgaagc agcagcactt cttcaagtcc 1740
gccatgcccg aaggctacgt ccaggagcgc accatcttct tcaaggacga cggcaactac 1800
aagacccgcg ccgaggtgaa gttcaggggc gacaccctgg tgaaccgcat cgagctgaag 1860
ggcatcgact tcaaggagga cggcaacatc ctggggcaca agctggagta caactacatc 1920
agccacaacg tctatatcac cggcgacaag cagaagaacg gcatcaaggc caacttcaag 1980
atccgccaca acatcgagga cggcagcgtg cagctcgccg accactacca gcagaacacc 2040
cccatcgggc acggccccgt getgctgccc gacaaccact acctgagcac ccagtccgcc 2100
ctgagcaaaag accccaacga gaagcgcgat cecatgggtc tgetggagtt cgtgaccgcc 2160
gccgggatca ctctcggcgt ggacgagctg tacaagttaa ggggcccgcga ctctagatca 2220
taatcagcca taccacattt gtagaggttt tacttgcttt aaaaaacctc ccacacctcc 2280
ccctgaacct gaaacataaa atgaatgcaa ttgttggtgt taacttgttt attgcagctt 2340
ataatggtta caaataaagc aatagcatca caaatttcac aaataaagca tttttttcac 2400
tgcattctag ttgtggtttg tccaaactca caaatgtatc ttaaagctta tcgatacgcg 2460
tacggcacta gtggatcccc cgggctgcag gaattcgata tcaagcttat cgataccgctc 2520
gacctcgagg gggggcccgg tacccaattc gccctatagt gagtcgtatt aagatcacgc 2580
gtagatccat gcgtcaattt tacgcatgat tatctttaac gtacgtcaca atatgattat 2640
ctttctaggg ttaattctagc tgcgtgttct gcagcgtgtc gagcatcttc atctgctcca 2700
tcacgctgta aaacacattt gcaccgcgag tctgcccgtc ctccacgggt tcaaaaacgt 2760
gaatgaacga ggcgcgcttg gcgtaatcat ggtcatagct gtttctctgt tgaattgtt 2820
atccgctcac aattccacac aacatacgag ccggaagcat aaagtgtaaa gcctgggggtg 2880
cctaattgag gagctaactc acattaattg cgttgcgctc actgcccgtt tccagtcgg 2940
gaaacctgtc gtgccagctg cattaatgaa tcggccaacg cgcggggaga ggcggtttgc 3000

```

```

gtattgggcg ctcttccgct tcctcgctca ctgactcgct gcgctcggtc gttcggtcgc 3060
ggcgagcggt atcagctcac tcaaaggcgg taatacgggt atccacagaa tcaggggata 3120
acgcaggaaa gaacatgtga gcaaaaggcc agcaaaaggc caggaaccgt aaaaaggccg 3180
cgttgctggc gtttttccat aggctccgcc cccctgacga gcatcacaaa aatcgacgct 3240
caagtcagag gtggcgaaac ccgacaggac tataaagata ccaggcggtt cccctggaa 3300
gctccctcgt gcgctctcct gttccgaccc tgcgctttac cggatacctg tccgcctttc 3360
tcccttcggg aagcgtggcg ctttctcata gctcacgctg taggtatctc agttcggtgt 3420
aggctcgttc ctccaagctg ggctgtgtgc acgaaccccc cgttcagccc gaccgctgcg 3480
ccttatccgg taactatcgt cttgagtcca acccggttaag acacgactta tccgactgg 3540
cagcagccac tggtaacagg attagcagag cgagggtatgt aggcggtgct acagagttct 3600
tgaagtgggt gcctaactac ggctacacta gaaggacagt atttggtatc tgcgctctgc 3660
tgaagccagt taccttcgga aaaagagttg gtagctcttg atccggcaaa caaacccaccg 3720
ctggtagcgg tgggtttttt gtttgcaagc agcagattac gcgcagaaaa aaaggatctc 3780
aagaagatcc tttgatcttt tctacggggg ctgacgctca gtggaacgaa aactcacgtt 3840
aagggatttt ggcatgaga ttatcaaaaa ggatcttcac ctagatcctt ttaattaaa 3900
aatgaagttt taaatcaatc taaagtatat atgagtaaac ttggtctgac agttaccaat 3960
gcttaatcag tgaggcacct atctcagcga tctgtctatt tgcgttcatt atagttgcct 4020
gactccccgt cgtgtagata actacgatac gggagggcct accatctggc cccagtgcgt 4080
caatgatacc gcgagaccca cgctcaccgg ctccagattt atcagcaata aaccagccag 4140
ccggaagggc cgagcgcaga agtggtcctg caactttatc cgctccatc cagtctatta 4200
attgttgccg ggaagctaga gtaagtagtt cgccagttaa tagtttgcgc aacgttggtg 4260
ccattgctac aggcacgtg gtgtcacgct cgtcgtttgg tatggcttca ttcagctccg 4320
gttcccaacg atcaaggcga gttacatgat cccccatgtt gtgcaaaaaa gcggttagct 4380
ccttcgggtc tccgatcggt gtcagaagta agttggccgc agtggtatca ctcatggtta 4440
tggcagcact gcataattct cttactgtca tgccatccgt aagatgcttt tctgtgactg 4500
gtgagtactc aaccaagtca ttctgagaat agtgtagtgc gcgaccgagt tgctcttgcc 4560
cggtcgaat acgggataat accgcgccac atagcagaac tttaaaagt ctcattcttg 4620
gaaaacgttc ttcggggcga aaactctcaa ggatcttacc gctgttgaga tccagttcga 4680
tgtaaccac tctgcaccc aactgatctt cagcatcttt tactttcacc agcgtttctg 4740
ggtagcaaaa aacaggaagg caaaatgccg caaaaaaggg aataagggcg acacggaaat 4800
gttgaatact catactcttc ctttttcaat attattgaag catttatcag ggttattgtc 4860
tcatgagcgg atacatattt gaatgtattt agaaaaataa acaaataggg gttccgcgca 4920
catttccccg aaaagtgcc c

```

<210> 54

<211> 4943

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PBS-ITR-ECFP sequence

<400> 54

```

cacctgacgc gccctgtagc ggcgcattaa gcgcggcggg tgtggtggtt acgcgcagcg 60
tgaccgctac acttgccagc gccctagcgc cgctcctttt cgctttcttc ccttcctttc 120
tcgccacgtt cgccggcttt ccccgtaag ctctaaatcg ggggtccctt ttagggttcc 180
gatttagtgc tttacggcac ctgcacccca aaaaacttga ttagggtgat ggttcacgta 240
gtgggcatc gccctgatag acggtttttt gccctttgac gttggagtcc acgttcttta 300
atagtggact cttgttccaa actggaacaa cactcaaccc tatctcggtc tattcttttg 360
atttataagg gattttgccg atttcggcct atttggtaaa aaatgagctg atttaacaaa 420
aatttaacgc gaattttaac aaaatattaa cgcttacaat ttccattcgc cattcaggct 480
gcgcaactgt tgggaagggc gatcggtgcg ggctcttcg ctattacgcc agctggcgaa 540
agggggatgt gctgcaaggc gattaagttg ggtaacgcca gggttttccc agtcacgacg 600
ttgtaaaacg acggccagt aattgtaata cgactacta tagggcgaat tgggtaccgg 660
gccccccctc gaggtcgacg gtatcgataa gcttgatata gaattcctgc agcccggggg 720
atcccatgcg tcaattttac gcagactata tttctagggt taatctagct gcatcaggat 780

```

catatcgctcg	ggtctttttt	cgggtcagtc	catcgcccaa	gctggcgcta	tctgggcatc	840
ggggaggaag	aagcccgctgc	cttttcccgc	gaggttgaag	cggcatggaa	agagtttgcc	900
gaggatgact	gctgctgcat	tgacgttgag	cgaaaacgca	cgtttaccat	gatgattcgg	960
gaaggtgtgg	ccatgcacgc	ctttaacggt	gaactgttcg	ttcaggccac	ctgggatacc	1020
agttcgctcg	ggctttttccg	gacacagttc	cggatggtca	gcccgaagcg	catcagcaac	1080
ccgaacaata	ccggcgacag	ccggaactgc	cgtagcgtg	tgacagattaa	tgacagcggc	1140
gcgggcgctg	gatattacgt	cagcgaggac	gggtatcctg	gctggatgcc	gcagaaatgg	1200
acatggatac	cccgtgagtt	acccggcggc	tcgttcattc	acgtttttga	acccgtggag	1260
gacgggcaga	ctcgcggtgc	aaatgtgttt	tacagcgtga	tgagagcagat	gaagatgctc	1320
gacacgctgc	agaacacgca	gctagattaa	ccctagaaag	ataatcatat	tgtgacgtac	1380
gttaaagata	atcatgcgta	aaattgacgc	atgggatcca	ctagtgttcc	cacaatgggt	1440
aattcgagct	cgcccgggga	tctaattcaa	ttagagacta	attcaattag	agctaattca	1500
attaggatcc	aagcttatcg	atttcgaacc	ctcgaccgcc	ggagtataaa	tagaggcgct	1560
tcgtctacgg	agcgacaatt	caattcaaac	aagcaaaagt	aacacgtcgc	taagcgaaaag	1620
ctaagcaaat	aaacaagcgc	agctgaacaa	gctaaacaat	cgggggtaccg	ctagagtcca	1680
cggtagcatc	caccggtcgc	caccatggtg	agcaaggcg	aggagctggt	caccgggggtg	1740
gtgcccattc	tggtcgagct	ggacggcgac	gtaaacggcc	acaagttcag	cgtgtccggc	1800
gagggcgagg	gcgatgccac	ctacggcaag	ctgaccctga	agttcatctg	caccaccggc	1860
aagctgcccc	tgccctggcc	caccctcgtg	accaccctga	cctggggcgt	gcagtgcctc	1920
agccgctacc	ccgaccacat	gaagcagcac	gactttctca	agtcgcccat	gcccgaaggc	1980
tacgtccagg	agcgacccat	cttcttcaag	gacgacggca	actacaagac	ccgcgcgcgag	2040
gtgaagtctg	agggcgacac	cctggtgaac	cgcctcgagc	tgaaggcat	cgacttcaag	2100
gaggacggca	acatcctggg	gcacaagctg	gagtacaact	acatcagcca	caacgtctat	2160
atcacccgcg	acaagcagaa	gaacggcatc	aaggccaact	tcaagatccg	ccacaacatc	2220
gaggacggca	gcgtgcagct	cgccgaccac	taccagcaga	acacccccat	cggcgacggc	2280
cccgtgctgc	tgcccgacaa	ccactacctg	agcaccagtc	cgccctgag	caaagacccc	2340
aacgagaagc	gcgatcacat	ggtcctgctg	gagttcgtga	cgcgcgcgg	gatcactctc	2400
ggcatggacg	agctgtacaa	gtaaagcggc	cgcgactcta	gatcataatc	agccatacca	2460
catttgtaga	ggttttactt	gcttttaaaa	acctcccaca	cctccccctg	aacctgaaac	2520
ataaaatgaa	tgcaattggt	gttggttaact	tgtttattgc	agcttataat	ggttacaaat	2580
aaagcaatag	catcacaaat	ttcacaaata	aagcattttt	ttcactgcat	tctagttgtg	2640
gtttgtccaa	actcatcaat	gtatcttaaa	gcttatcgat	acgcgtacgg	cgcgcctagg	2700
ccggccgata	ctagttctag	agcgcccgcc	accgcggtgg	agctccagct	tttgtccct	2760
ttagttaggg	ttaatttcga	gcttggcgta	atcatggtca	tagctgtttc	ctgtgtgaaa	2820
ttgttatccg	ctcacaaatc	cacacaacat	acgagccgga	agcataaagt	gtaaagcctg	2880
gggtgcctaa	tgagtgaact	aactcacatt	aattgcgttg	cgctcactgc	ccgctttcca	2940
gtcgggaaac	ctgtcgtgcc	agatcagctt	atgaactggc	caacgcgcgg	ggagaggcgg	3000
tttgcgattt	gggcgctctt	ccgcttcctc	gctcactgac	tcgctgcgct	cggctcgttcg	3060
gctgcggcga	gcggtatcag	ctcactcaaa	ggcggttaata	cggttatcca	cagaatcagg	3120
ggataacgca	ggaaagaaca	tgtagagcaa	aggccagcaa	aaggccagga	accgtaaaaa	3180
ggccgcgctg	ctggcgtttt	tccataggct	ccgccccctt	gacgagcatc	acaaaaatcg	3240
acgctcaagt	cagagggtggc	gaaacccgac	aggactataa	agataccagg	cgtttccccc	3300
tggaagctcc	ctcgtgcgct	ctcctgttcc	gacctggccg	cttaccggat	acctgtccgc	3360
ctttctccct	tcgggaagcg	tggcgctttc	tcatagctca	cgctgtaggt	atctcagttc	3420
ggtgtaggtc	gttcgctcca	agctgggctg	tgtgcacgaa	cccccggttc	agccccgaccg	3480
ctgcgcctta	tccggtaact	atcgtcttga	gtccaaaccg	gtaagacacg	acttatcgcc	3540
actggcagca	gccactggta	acaggattag	cagagcgagg	tatgtaggcg	gtgctacaga	3600
gttcttgaag	tggtggccta	actacggcta	cactagaagg	acagtatttg	gtatctgcgc	3660
tctgctgaag	ccagttacct	tcggaaaaag	agttggtagc	tcttgatccg	gcaaaaaaac	3720
caccgctggt	agcgggtggt	tttttgtttg	caagcagcag	attacgcgca	gaaaaaaagg	3780
atctcaagaa	gatcctttga	tcttttctac	gggggtctgac	gctcagtgga	acgaaaaactc	3840
acgttaaggg	atttttggtca	tgagattatc	aaaaaggatc	ttcacctaga	tctttttaaa	3900
ttaaaaatga	agtttttaaat	caatctaag	tatatatgag	taaaacttgg	ctgacagtta	3960
ccaatgctta	atcagttagg	cacctatctc	agcagatctg	ctatttcggt	catccatagt	4020
tgctgactc	cccgtcgtgt	agataactac	gatacgggag	ggcttaccat	ctggccccag	4080
tgctgcaatg	ataccgcgag	acccacgctc	accggctcca	gattttatcag	caataaacca	4140
gccagccgga	agggccgagc	gcagaagtgg	tcctgcaact	ttatccgcct	ccatccagtc	4200
tattaattgt	tgccgggaag	ctagagtaag	tagttcgcca	gttaatagtt	tgcgcaacgt	4260

tgttgccatt	gctacaggca	tctgtggtgc	acgctcgtcg	tttggtagtg	cttcattcag	4320
ctccggttcc	caacgatcaa	ggcgagttac	atgatccccc	atgttgtgca	aaaaagcggg	4380
tagctccttc	ggctcctccga	tctgttgcag	aagtaagttg	gccgcagtg	tatcactcat	4440
ggttatggca	gactgcata	attctcttac	tgtcatgcc	tccgtaagat	gcttttctgt	4500
gactgggtgag	tactcaacca	agtcattctg	agaatagtg	atgcggcgac	cgagttgctc	4560
ttgcccggcg	tcaatacggg	ataataccgc	gccacatagc	agaacttta	aagtgtcat	4620
cattggaaaa	cgttcttcgg	ggcgaaaact	ctcaaggatc	ttaccgctgt	tgagatccag	4680
ttcgaatgtaa	ccactcgtg	cacccaactg	atcttcagca	tcttttactt	tcaccagcgt	4740
ttctgggtga	gcaaaaacag	gaaggcaaaa	tgccgcaaaa	aagggaataa	gggcgacacg	4800
gaaatgttga	atactcatac	tcttcctttt	tcaatattat	tgaagcattt	atcaggggta	4860
ttgtctcatg	agcggatata	tatttgaatg	tatttagaaa	aataaataaa	taggggttcc	4920
gcgcacattt	ccccgaaaag	tgc				4943

<210> 55

<211> 4944

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PBS-ITR-EGFP
sequence

<400> 55

cacctgacgc	gccctgtagc	ggcgcatata	gcgcggcggg	tgtggtggtt	acgcgcagcg	60
tgaccgctac	acttgccagc	gccctagcgc	ccgctccttt	cgctttcttc	ccttcctttc	120
tcgccacggt	cgccggcttt	ccccgtcaag	ctctaaatcg	ggggctccct	ttagggttcc	180
gatttagtgc	tttacggcac	ctcgacccca	aaaaacttga	ttagggtgat	gggtcacgta	240
gtgggcccac	gccctgatag	acggtttttc	gccctttgac	gttggagtcc	acgttcttta	300
atagtggact	cttggtccaa	actggaacaa	cactcaaccc	tatctcggtc	tattcttttg	360
atttataagg	gattttgccg	atttcggcct	attggttaaa	aaatgagctg	atttaacaaa	420
aatttaacgc	gaattttaac	aaaatattaa	cgcttacaat	ttccattcgc	cattcagggt	480
gcgcaactgt	tgggaagggc	gatcgggtgc	ggcctcttcg	ctattacgcc	agctggcgaa	540
agggggatgt	gctgcaaggc	gattaaagtt	ggtaacgcca	gggttttccc	agtcacgacg	600
ttgtaaaacg	acggccagtg	aattgttaata	cgactacta	tagggcgaa	tgggtaccgg	660
gccccccctc	gaggtcgacg	gtatcgataa	gcttgatata	gaattcctgc	agcccggggg	720
atcccattgc	tcaattttac	gcagactatc	tttctagggt	taatctagct	gcacagggat	780
catatcgctg	ggcttttttt	ccggctcagt	catcgcccaa	gctggcgcta	tctgggcata	840
ggggaggaag	aagcccgctg	cttttcccg	gaggttgaa	cgcatggaa	agagtttgcc	900
gaggatgact	gctgctgcat	tgacgttgag	cgaaaacgca	cgtttaccat	gatgattcgg	960
gaagggtgtg	ccatgcacgc	ctttaacggt	gaactgttcg	ttcaggccac	ctgggatacc	1020
agttcgtcgc	ggcttttccg	gacacagttc	cggatgggtc	gcccgaagcg	catcagcaac	1080
ccgaacaata	ccggcgacag	ccggaactgc	cgtgccggtg	tgcagattaa	tgacagcggg	1140
gcggcgctgg	gatattacgt	cagcgaggac	gggtatccct	gctggatgcc	gcagaaatgg	1200
acatggatac	cccgtaggtt	acccggcggc	tcgttcattc	acgtttttga	acccgtggag	1260
gacgggcaga	ctcgcggtgc	aaatgtgttt	tacagcgtga	tggagcagat	gaagatgctc	1320
gacacgctgc	agaacacgca	gctagattaa	ccctagaaag	ataatcatat	tgtgacgtac	1380
gttaaagata	atcatgcgta	aaattgacgc	atgggatcca	ctagtgttcc	cacaatgggt	1440
aattcgagct	cgcccgggga	tctaattcaa	ttagagacta	attcaattag	agctaattca	1500
attaggatcc	aagcttatcg	atttcgaacc	ctcgaccgcc	ggagtataaa	tagaggcgct	1560
tcgtctacgg	agcgacaatt	caattcaaac	aagcaaagtg	aacacgtcgc	taagcgaaag	1620
ctaagcaaat	aaacaagcgc	agctgaacaa	gctaacaac	cggggtaccg	ctagagtcga	1680
cggtaccgcg	ggcccgggat	ccaccggtcg	ccaccatggg	gagcaagggc	gaggagctgt	1740
tcaccggggg	ggtgcccatc	ctggtcgagc	tggacggcga	cgtaaacggc	cacaagttca	1800
gcgtgtccgg	cgaggcgag	ggcgatgcca	cttacggcaa	gctgacctg	aagttcatct	1860
gcaccaccgg	caagctgccc	gtgccctggc	ccaccctcgt	gaccaccctg	acctacggcg	1920
tgcagtgttt	cagccgctac	cccgaaccac	tgaagcagca	cgacttcttc	aagtcggcca	1980
tgcccgaagg	ctacgtccag	gagcgcacca	tcttcttcaa	ggacgacggc	aactacaaga	2040

```

cccgcgccga ggtgaagttc gagggcgaca ccctggtgaa ccgcatcgag ctgaagggca 2100
tcgacttcaa ggaggacggc aacatcctgg ggcacaagct ggagtacaac tacaacagcc 2160
acaacgtcta tatcatggcc gacaagcaga agaacggcat caaggtgaac ttcaagatcc 2220
gccacaacat cgaggacggc agcgtgcagc tcgccgacca ctaccagcag aacacccccca 2280
tcggcgacgg ccccggtgctg ctgcccgaca accactacct gagcaccag tccgccctga 2340
gcaaagaccc caacgagaag cgcgatcaca tggctcctgct ggagttcgtg accgccggcg 2400
ggatcactct cggcatggac gagctgtaca agtaaagcgg ccgcgactct agatcataat 2460
cagccatacc acattttagt aggttttact tgctttaaaa aacctccac acctccccct 2520
gaacctgaaa cataaaatga atgcaattgt tgttggtaac ttgtttattg cagcttataa 2580
tggttacaaa taaagcaata gcatcacaaa ttccacaaat aaagcatttt ttctactgca 2640
ttctagttgt ggtttgtcca aactcatcaa tgtatcttaa agcttatcga tacgctacg 2700
gcgcgcctag actagttcta gagcgccgcg caccgcggtg gagctccagc ttttgttccc 2760
tttagtgagg gttaatttctg agcttggcgt aatcatggtc atagctgttt cctgtgtgaa 2820
attgttatcc gtcacaatt ccacacaaca tacgagccgg aagcataaag tgtaaagcct 2880
ggggtgccta atgagtgagc taactcacat taattgcgtt gcgctcactg cccgctttcc 2940
agtcgggaaa cctgtcgtgc cagctgcatt aatgaatcgg ccaacgcgcg gggagaggcg 3000
gtttgcgtat tgggcgctct tccgcttcct cgctcactga ctcgctgcgc tcggtcgttc 3060
ggctgcggcg agcggtatca gctcactcaa aggcggtaat acggttatcc acagaatcag 3120
gggataacgc aggaaagaac atgtgagcaa aaggccagca aaaggccagg aaccgtaaaa 3180
aggccgcgtt gctggcggtt ttccataggc tccgcccccc tgacgagcat caaaaaatc 3240
gacgtcaag tcagaggtag cgaaaccga caggactata aagataccag gcgtttcccc 3300
ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgga tacctgtccg 3360
cctttctccc ttcgggaagc gtggcgcttt ctcatagctc acgctgtagg tatctcagtt 3420
cgggtgtaggt cgttcgcctc aagctgggct gtgtgcacga accccccgtt cagcccgacc 3480
gctgcgcctt atccggtaac tategtcctg agtccaaccc ggtaagacac gacttatcgc 3540
cactggcagc agccactggt aacaggatta gcagagcgag gtatgtaggc ggtgctacag 3600
agttcttgaa gtgggtggct aactacggct acactagaag gacagtattt ggtatctgcg 3660
ctctgctgaa gccagttacc ttcggaaaaa gagttagtag ctcttgatcc ggcaaacaaa 3720
ccaccgctgg tagcggtagt ttttttgttt gcaagcagca gattacgcgc agaaaaaaag 3780
gatctcaaga agatcctttg atcttttcta cggggtctga cgctcagtgg aacgaaaact 3840
caggttaagg gattttggtc atgagattat caaatctaaa gtatatatga gtaaacctgg 3900
attaataatg aagtttttaa tcaatctaaa gtatatatga gtaaacctgg 3960
accaatgctt aatcagtgag gcacctatct cagggatctg tctatttcgt tcatccatag 4020
ttgctgact ccccgctcgt tagataacta cgatacggga gggcttacca tctggcccca 4080
gtgctgcaat gataccgcga gaccacgct caccggctcc agatttatca gcaataaacc 4140
agccagccgg aagggccgag cgcagaagtg gtcctgcaac tttatccgcc tccatccagt 4200
ctattaattg ttgcccggaa gctagagtaa gtagtccgc agttaatagt ttgcgcaacg 4260
ttgttgccat tgctacaggg atcgtggtgt cagcgtcgtc gtttggtatg gtttcattca 4320
gctccgggtt ccaacgatca aggcgagtta catgatcccc catgttgtgc aaaaaagcgg 4380
ttagctcctt cggctcctcg atcgttgtca gaagtaagtt ggccgcagtg ttatcactca 4440
tggttatggc agcactgcat aattctctta ctgtcatgcc atccgtaaga tgcttttctg 4500
tgactggtga gtactcaacc aagtcattct gagaatagtg tatgcggcga ccgagttgct 4560
cttgcgccgg gtcaataacg gataataccg cgccacatag cagaacttta aaagtgtc 4620
tcattggaaa acgttcttcg gggcgaaaac tctcaaggat cttaccgctg ttgagatcca 4680
gttcgatgta acccactcgt gcacccaact gatcttcagc atcttttact ttcaccagcg 4740
tttctgggtg agcaaaaaa ggaaggcaaa atgccgcaaa aaagggaata agggcgacac 4800
ggaaatggtg aatactcata ctcttcttt ttcaatatta ttgaagcatt tatcagggtt 4860
attgtctcat gagcggatac atatttgaat gtatttagaa aaataaaca ataggggttc 4920
cgcgcacatt tccccgaaa gtgc 4944

```

<210> 56

<211> 4944

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pBS-ITR-EYFP

sequence

<400> 56

```

cacctgacgc gccctgtagc ggcgcattaa gcgcggcggg tgtgggtggtt acgcgcagcg 60
tgaccgctac acttgccagc gccctagcgc cgcctccttt cgctttcttc ccttcctttc 120
tcgccacggt cgccggcttt ccccgctcaag ctctaaatcg ggggctccct ttaggggtcc 180
gatttagtgc ttacggcac ctcgacccca aaaaacttga ttaggggtgat gggtcacgta 240
gtgggccaac gccctgtag acggtttttt gccctttgac gttggagtcc acgttcttta 300
atagtggact cttgttccaa actggaacaa cactcaaccc tatctcggtc tattcttttg 360
atctataagc gattttgccg atttcggcct atttggtaaa aaatgagctg atttaacaaa 420
aatttaacgc gaattttaac aaaatattaa cgcttacaat ttccattcgc cattcaggct 480
gcgcaactgt tgggaagggc gatcgggtgcg ggctctctcg ctattacgcc agctggcgaa 540
agggggatgt gctgcaaggc gattaagttg ggtaacgcca gggttttccc agtcacgacg 600
ttgtaaaacg acggccagtg aattgtaata cgactcacta tagggcgaaat tgggtaccgg 660
gccccccctc gaggtcgacg gtatcgataa gcttgatata gaattcctgc agcccggggg 720
atcccatgcg tcaattttac gcagactatc tttctagggt taatctagct gcacaggat 780
catatcgctc ggtctttttt ccggctcagt catcgcccaa gctggcgcta tctgggcatc 840
ggggaggaag aagcccgctc cttttcccg cagggtgaag cgaaaacgca cgtttaccat gatgattcgg 900
gaggatgact gctgctgcat tgacgttgag cgaaacgca gaactgttcg ttcaggccac ctgggatacc 1020
gaagggtgtg ccacgcacgc ctttaacggt gacacagttc cggatggtca gcccgaaagc catcacgcaac 1080
agttcgctgc ggcttttccg ccggcgacag ccggaactgc cgtgcgggtg tgcagattaa tgacagcggt 1140
ccgaacaata cccgtgagtt acccgcgggc cagcgaggac ggggtatcctg gctggatgcc gcagaaatgg 1200
gcggcgctgg gatattacgt acccgcgggc tcggttcattc acgtttttga acccggtggag 1260
acatggatac cccgtgagtt aaatgtgttt tacagcgtga tggagcagat gaagatgctc 1320
gacgggcaga agaacacgca gctagattaa ccctagaaag ataatcatat tgtgacgtac 1380
gttaaagata atcatgctga aaattgacgc atgggatcca ctagtgttcc cacaatgggt 1440
aattcgagct cgcccgggga tctaattcaa ctcgaccgcc ggagtataaa tagaggcgct 1500
attaggatcc aagcttatcg atttcgaacc ctcgaccgcc gtagtataaa tagaggcgct 1560
tcgtctacgg agcgacaatt caattcaaac aagcaaagtg aacacgtcgc taagcgaaaag 1620
ctaagcaaat aaacaagcgc agctgaacaa gctaaacaat cggggtagcg ctagagtcga 1680
cggtacgac caccgttcgc caccatggtg agcaagggcg aggagctggt caccgggggtg 1740
gtgcccaccc tgggtcgagct ggacggcgac gtaaacggcc acaagttagc cgtgtccggc 1800
gagggcgagg gcgatgccac ctacggcaag ctgaccctga agttcatctg caccaccggc 1860
aagctgcccg tgccctggcc caccctcgtg accacettcg gctacggcct gcagtgtctc 1920
gcccgtacc ccgaccacat gaagcagcac gacttcttca agtccgccat gcccgaggc 1980
tacgtccagg agcgaccat cttcttcaag gacgacggca actacaagac ccgcgccgag 2040
gtgaagtctg agggcgacac cctggtgaac cgcactgagc tgaagggcat cgacttcaag 2100
gaggacggca acatcctggg gcacaagctg gtagtaact acaacagcca caactctat 2160
atcatggccg acaagcagaa gaacggcatc aaggtgaact tcaagatccg ccacaacatc 2220
gaggacggca gcgtgcagct cgccgaccac taccagcaga acaccccat cggcgacggc 2280
cccgtgctgc tgcccgacaa ccaactacct ggtcctgctg gagttcgtga ccgcccctgag caaagacccc 2340
aacgagaagc gcgatcacat ggtcctgctg gagttcgtga ccgcccctgag gatcactctc 2400
ggcatggacg agctgtacaa gtaaacgggc cgcgactcta gatcataatc agccatacca 2460
catttgtaga ggttttactt gctttaaaaa acctccaca cctccccctg aacctgaaaac 2520
ataaaatgaa tgcaattggt gttgttaact tgtttattgc agcttataat ggttacaaat 2580
aaagcaatag catcacaaat ttcacaaata aagcattttt ttcactgcat tctagtgtgtg 2640
gtttgtccaa actcatcaat gtatcttaaa gcttatcgat acgcgtacgg cgcgccctagg 2700
ccggccgac actagttcta gagcgggcgc caccggtg gagctccagc ttttgttccc 2760
tttagtgagg gtttaatttc agcttggcgt aatcatggtc atagctgttt cctgtgtgaa 2820
attgttatcc gtcacaatt ccacacaaca tacgagccgg aagcataaag tgtaaaagcct 2880
ggggtgccta atgagttagc taactcacat taattgcgtt gcgctcactg cccgctttcc 2940
agtcgggaaa cctgtcgtgc cagctgcatt aatgaatcgg ccaacgcgcg gggagaggcg 3000
gtttgcgtat tggcgctct ctcgcttctt gctcactcaa agcggtaat ctcgctgcgc tcggctcgttc 3060
ggctgcggcg agcgggtatc gctcactcaa agcggtaat aagggcagca acaggtatcc acagaatcag 3120
gggataacgc aggaagaac atgtgagcaa aagggcagca aaaggccagg aaccgtaaaa 3180
aggccgcgtt gctggcggtt tccataggc tccgcccccc tgacgagcat caaaaaatc 3240
gacgctcaag tcagaggtgg cgaaacccga caggactata aagataccag gcgtttcccc 3300

```

ctggaagctc	cctcgtgcgc	tctcctgttc	cgaccctgcc	gcttaccgga	tacctgtccg	3360
cctttctccc	ttcgggaagc	gtggcgcttt	ctcatagctc	acgctgtagg	tatctcagtt	3420
cggtgtaggt	cgttcgctcc	aagctgggct	gtgtgcacga	acccccggt	cagcccgacc	3480
gctgcgcctt	atccggtaac	tatcgtcttg	agtcacaacc	ggtaagacac	gacttatcgc	3540
cactggcagc	agccactggg	aacaggatta	gcagagcgag	gtatgtaggc	gggtgctacag	3600
agttcttgaa	gtgggtggcct	aactacggct	acactagaag	gacagtattt	ggtatctgcg	3660
ctctgctgaa	gccagttacc	ttcggaaaaa	gagttggtag	ctcttgatcc	ggcaaacaaa	3720
ccaccgctgg	tagcgggtgg	ttttttgttt	gcaagcagca	gattacgcgc	agaaaaaaag	3780
gatctcaaga	agatcctttg	atcttttcta	cggggtctga	cgctcagtg	aacgaaaact	3840
cacgttaagg	gattttgggt	atgagattat	caaaaaggat	cttcacctag	atccttttaa	3900
atataaaatg	aagttttaaa	tcaatctaaa	gtatatatga	gtaaacttgg	tctgacagtt	3960
accaatgctt	aatcagtgag	gcacctatct	cagcgatctg	tctatttcgt	tcattccatag	4020
ttgcctgact	ccccgtcgtg	tagataacta	cgatacggga	gggcttacca	tctggcccca	4080
gtgctgcaat	gataccgcga	gacccacgct	caccggctcc	agatttatca	gcaataaacc	4140
agccagccgg	aaggggccgag	cgcagaagtg	gtcctgcaac	tttatccgcc	tccatccagt	4200
ctattaattg	ttgcccggaa	gctagagtaa	gtagttcgcc	agttaatagt	ttgcgcaacg	4260
ttgttgccat	tgctacaggc	atcgtgggtg	cacgctcgtc	gtttggtagt	gcttcattca	4320
gctccgggtt	ccaacgatca	aggcgagtta	catgatcccc	catgttggtg	aaaaaagcgg	4380
ttagctcctt	cggtcctccg	atcgttgtca	gaagtaagtt	ggccgcagtg	ttatcactca	4440
tggttatggc	agcactgcat	aattctctta	ctgtcatgcc	atccgtaaga	tgcttttctg	4500
tgactgggtg	gtactcaacc	aagtcattct	gagaatagtg	tatgcccga	ccgagttgct	4560
cttgcccggc	gtcaatacgg	gataataccg	cgccacatag	cagaacttta	aaagtgtcta	4620
tcattggaaa	acgttcttcg	gggcgaaaaa	tctcaaggat	cttaccgctg	ttgagatcca	4680
gttcgatgta	acccactcgt	gcacccaact	gatcttcagc	atcttttact	ttcaccagcg	4740
tttctgggtg	agcaaaaaaca	ggaaggcaaa	atgccgcaaa	aaagggaata	agggcgacac	4800
ggaaatggtg	aatactcata	ctcttccctt	ttcaatatta	ttgaagcatt	tatcagggtt	4860
attgtctcat	gagcggatac	atatttgaat	gtatttagaa	aaataaacaa	ataggggttc	4920
cgcgcacatt	tccccgaaaa	gtgc				4944

<210> 57

<211> 7670

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pIAO-pL DNA sequence

<400> 57

aacgcgcggg	gagaggcggt	ttgcgtattg	ggcgctcttc	cgcttccctcg	ctcactgact	60
cgctgcgctc	ggtcgttcgg	ctgcggcgag	cggtatcagc	tcaactcaaa	gcggtaatat	120
ggttatccac	agaatcagg	gataacgcag	gaaagaacat	gtgagcaaaa	ggccagcaaa	180
aggccaggaa	ccgtaaaaag	gccgcgttgc	tggcgttttt	ccataggctc	cgccccctg	240
acgagcatca	caaaaatcga	cgctcaagtc	agaggtggcg	aaaccgcaca	ggactataaa	300
gataccaggc	gtttccccct	ggaagctccc	tcgtgcgctc	tcctgttccg	accctgccgc	360
ttaccggata	cctgtccgcc	tttctccctt	cgggaaagct	ggcgctttct	caatgctcac	420
gctgtaggta	tctcagttcg	gtgtaggctg	ttcgctccaa	gctgggctgt	gtgcacgaac	480
cccccgttca	gcccagccgc	tgcgcttat	ccggtaacta	tcgtcttgag	tccaaccggg	540
taagacacga	cttatcgcca	ctggcagcag	ccactggtaa	caggattagc	agagcgagg	600
atgtaggcgg	tgctacagag	ttcttgaagt	gggtggcctaa	ctacggctac	actagaagga	660
cagtatttgg	tatctgcgct	ctgctgaagc	cagttacctt	cggaaaaaa	gttggttagct	720
cttgatccgg	caaaacaaacc	accgctggta	gcgggtggtt	ttttgtttgc	aagcagcaga	780
ttacgcgcga	aaaaaaagga	tctcaagaag	atcctttgat	cttttctacg	gggtctgacg	840
ctcagtgga	cgaaaaactca	cgttaaggga	ttttggtcat	gagattatca	aaaaggatct	900
tcacctagat	cctttttaaat	taaaaatgaa	gttttaaatc	aatctaaagt	atatatgagt	960
aaacttggtc	tgacagttac	caatgcttaa	tcagttaggc	acctatctca	gcgatctgtc	1020
tatttcggtc	atccatagtt	gcctgactcc	ccgtcgtgta	gataactacg	atacgggagg	1080

gcttaccatc	tggccccagt	gctgcaatga	taccgcgaga	cccacgctca	ccggctccag	1140
atztatcagc	aataaaccag	ccagccggaa	gggcccagcg	cagaagtggg	cctgcaactt	1200
tatccgcctc	catccagtct	attaattgtt	gccgggaagc	tagagtaagt	agttcgccag	1260
ttaatagttt	gcgcaacggt	ggtgccattg	ctacaggcat	cgtgggtgtca	cgctcgctcg	1320
ttggtatggc	ttcattcagc	tccggttccc	aacgatcaag	gcgagttaca	tgatccccc	1380
tggtgtgcaa	aaaagcgggt	agctccttcg	gtcctccgat	cgttgtcaga	agtaagtgtg	1440
ccgcagtgtt	atcactcatg	gttatggcag	caactgcataa	ttctcttact	gtcatgccat	1500
ccgtaagatg	cttttctgtg	actgggtgag	actcaaccaa	gtcattctga	gaatagtgtg	1560
tgcggcgacc	gagttgctct	tgcccggcgt	caatacggga	taataccgcg	ccacatagca	1620
gaactttaaa	agtgtctc	atttgaaaac	gttcttcggg	gcgaaaactc	tcaaggatct	1680
taccgctgtt	gagatccagt	tcgatgtaac	ccactcgtgc	acccaactga	tcttcagcat	1740
cttttacttt	caccagcggt	tctgggtgag	caaaaaacagg	aaggcaaaat	gccgcaaaaa	1800
agggataaag	ggcgacacgg	aaatgttgaa	tactcatact	cttctttttt	caatattatt	1860
gaagcattta	tcaggggttat	tgtctcatga	gcggatacat	atgtgaatgt	atthagaaaa	1920
ataaacaagt	aggggttcgg	cgcacatttc	cccgaagagt	gccacctgac	gtctaagaaa	1980
ccattattat	catgacatta	acctataaaa	ataggcgtat	cacggggccc	tgagggtgaac	2040
caattgtcac	acgtaatat	acgacaacta	ccgtgcacag	gctttgataa	ctccttcacg	2100
tagtattcac	cgagtgggtac	tccgttgggtc	tgtgttctct	ttcccaaata	aggcattcca	2160
tttatcatat	acttcgtacc	actgtcacac	atcatgagga	tttttattcc	atacttactt	2220
ggcttgtttg	ggatatacat	cctaaccgga	caccgtcctc	taaaaccaag	taactgttca	2280
tctatgggtc	aatgagcccc	tggagtgtaa	ttttgtatgc	actgatggat	aaagagatcc	2340
catatttttc	taacaggagt	aaatacatcg	ttttctcgaa	gtgtgggccc	tatacttttg	2400
tcattccattc	taagacatcg	tatcaaaaaa	tccaaaacga	tccacagact	cattacagag	2460
acgtacacat	tgacaaagat	cgatccaaag	aggatcatctg	tggacatgtg	gttatctttt	2520
ctcactgctg	tcattaccag	aataccaaag	aaagcataga	tttcatcttc	attcgtgtca	2580
cgaaatgtag	cacctgtcat	agattcccga	cgtttcaatg	atatctcagc	atltgtccat	2640
tttacaattt	gcgaatttat	ctcatcagta	aaaaatagtt	tgaagcataa	aagtgggtca	2700
tatatattgc	ggcacatacg	cgtcggacct	ctttgagatc	tgacaatgtt	cagtgcagag	2760
actcggctac	cgtcgttgga	ctttgaagtt	aaattcagat	ataaagacgc	tgaaaatcat	2820
ttgattttcg	ctctaacata	ccaccctaaa	gattataaat	ttaatgaatt	attaaaatac	2880
gtacaacaat	tgtctgtaaa	tcaacaacgc	acagaatcta	gcgcttaata	aatgtactaa	2940
taacaatgta	atcgcgcgga	atcgcgcgga	aggatgaaca	gaggtgcgtc	tggtgcaaac	3000
tcctttactt	tgaacaccag	ggaaacttca	aggaaatttt	cctcctcttc	agcagagtgc	3060
gtaccgggtc	cccgggggtc	ccccctgccc	ggttattatt	atlttttgaca	ccagaccaac	3120
tggtaatggg	agcgaccggc	gctcagctgg	aattccgccc	atactgacgg	gctccaggag	3180
tcgtcgccac	caatccccat	atggaaaaccg	tcgatattca	gccatgtgcc	ttcttcgcgc	3240
tcgacgagat	ggcgatggct	gggtttccatc	agttgtgtgt	gactgtagcg	gctgatgttc	3300
aactggaagt	cgccgcgcga	ctgggtgtggg	ccataattca	attcgcgcgt	cccgcagcgc	3360
agaccgtttt	cgctcgggaa	gacgtacggg	gtatacatgt	ctgacaatgg	cagatcccag	3420
cgggtcaaac	aggcggcagt	aaggcggctg	ggatagtttt	cttgccggccc	taatccgagc	3480
cagtttacct	gctctgtctc	ctgcgccagc	tggcagttca	ggccaatccg	cgcgggatgc	3540
gggtgtatcg	tcgccacttc	aacatcaacg	gtaatecgca	tttgaccact	accatcaatc	3600
cggtaggttt	tccggctgat	aaataagggtt	ttcccctgat	gctgccacgc	gtgagcggtc	3660
gtaatcagca	ccgcacacgc	aagtgtatct	gccgtgcact	gcaacaacgc	tgcttcggcc	3720
tggtaatggc	ccgcgccttt	ccagcgttcg	accagggcgt	taggggtcaat	gcgggtcgct	3780
tcacttacgc	caatgtcggt	atccagcggg	gcacgggtga	actgatcgcg	cagcggcgctc	3840
agcagttggt	ttttatcgcc	aatccacatc	tgtgaaagaa	agcctgactg	gcgggttaaat	3900
tgccaacgct	tattaccag	ctcgatgcaa	aaatccattt	cgctgggtgg	cagatgcggg	3960
atggcgtggg	acgcggcggg	gagcgtcaca	ctgaggtttt	ccgccagacg	ccactgctgc	4020
caggcgctga	tgtgcccggc	ttctgaacct	gcgggtcgct	tcgggtgcac	tacgcgtact	4080
gtgagccaga	gttgcccggc	gctctccggc	tgccgtagtt	caggcagttc	aatcaactgt	4140
ttaccttgtg	gagcgacatc	cagaggcact	tcaccgcttg	ccagcggctt	accatccagc	4200
gccaccatcc	agtgcaggag	ctcgttatcg	ctatgacgga	acaggtatct	gctgggtcact	4260
tcgatgggtt	gcccgataaa	acggaactgg	aaaaactgct	gctgggtgtt	tgcttcgctc	4320
agcgctggat	gcggcggtgcg	gtcggcaaaag	accagaccgt	tcatacagaa	ctggcgatcg	4380
ttcggcggtat	cgccaaaatc	accgcggtaa	gccgaccacg	gggtgcccgt	ttcatcatat	4440
ttaatcagcg	actgatccac	ccagtcccag	acgaagccgc	cctgtaaacg	gggatactga	4500
cgaaacgcct	gccagtat	agcgaaaccg	ccaagactgt	taccatcg	gtgggcgtat	4560

tcgcaaagga	tcagcggg	cgtctctcca	ggtagcgaaa	gccatttttt	gatggaccat	4620
ttcggcacag	ccgggaagg	ctggtcttca	tccacgcgcg	cgtacatcgg	gcaaataata	4680
tcggtggccg	tggtgtcggc	tccgcgcgct	tcatactgca	ccgggcggga	aggatcgaca	4740
gatttgatcc	agcgatacag	cgcgtcgtga	ttagcgccgt	ggcctgatcc	attccccagc	4800
gaccagatga	tcacactcgg	gtgattacga	tcgcgctgca	ccattcgcgt	tacgcgttcg	4860
ctcatcgccg	gtagccagcg	cggatcatcg	gtcagacgat	tcattggcac	catgccgtgg	4920
gtttcaatat	tggcttcatc	caccacatac	aggcgcgtagc	ggtcgcacag	cgtgtaccac	4980
agcggatggt	tcggataatg	cgaacagcgc	acggcgttaa	agttgttctg	cttcatcagc	5040
aggatatcct	gcaccatcgt	ctgctcatcc	atgacctgac	catgcagagg	atgatgctcg	5100
tgacggttaa	cgcctcgaat	cagcaacggc	ttgccgttca	gcagcagcag	accatttttca	5160
atccgcacct	cgcggaaacc	gacatcgca	gcttctgctt	caatcagcgt	gccgtcggcg	5220
gtgtgcagtt	caaccaccgc	acgatagaga	ttcgggattt	cggcgctcca	cagtttcggg	5280
ttttcgacgt	tcagacgtag	tgtgacgcga	tcggcataac	caccacgctc	atcgataatt	5340
tcaccgcgca	aaggcgcggt	gccgctggcg	acctgcgttt	cacctgccca	taaagaaact	5400
gttaccgcta	ggtagtcacg	caactcgccg	cacatctgaa	cttcagcctc	cagtacagcg	5460
cggctgaaat	catcattaaa	gcgagtgga	acatggaaat	cgtgtatttg	tgtagtcggt	5520
ttatgcagca	acgagacgtc	acggaaaatg	ccgctcatcc	gccacatata	ctgatcttcc	5580
agataactgc	cgtcactcca	acgcagcacc	atcaccgcga	ggcggttttc	tcggcgcggt	5640
aaaaatgcgc	tcagggtcaaa	ttcagacggc	aaacgactgt	cctggcgcta	accgaccag	5700
cgcgcgttgc	accacagatg	aaacgcgcgag	ttaacgccat	caaaaataat	tcgcgtctgg	5760
ccttcctgta	gccagctttc	atcaacatta	aatgtgagcg	agtaacaacc	cgtcggattc	5820
tcggtgggaa	caaacggcgg	attgaccgta	attggatagg	ttacgttggt	gtagatgggc	5880
gcategtaac	cgtgcatctg	ccagtttgag	gggacgacga	cgggatccgt	ttttttatta	5940
caaaactggt	acgaaaacag	taaaatactt	atlttattcgg	accaacaatg	tttattctta	6000
cctctaatag	tctctgtgg	caagggtcaag	attctgttag	aagccaatga	agaacctggg	6060
gtttcaataa	cattttgttc	gtctaataat	tcactacgct	tgacgttggc	tgacacttca	6120
tgtacctcat	ctataaacgc	ttcttctgta	tcgctctgga	cgtcttcaact	tacgtgatct	6180
gatatttcac	tgtcagaatc	ctcaccaaca	agctcgtcat	cgccttgca	aagagcagag	6240
aggatatgct	catcgtctaa	agaacatccc	atlttattat	atattagtea	cgatatctat	6300
aacaagaaaa	tatatatata	ataagttatc	acgtaagtag	aacatgaaat	aacaatatta	6360
attatcgtat	gagttaaatc	ttaaaagtca	cgtaaaagat	aatcatgcgt	catttttgact	6420
cacgcggtcg	ttatagttca	aaatcagtag	cacttaccgc	attgacaagc	acgcctcagc	6480
cgagctccaa	gcggcgactg	agatgtccta	aattgcaaac	agcgacggat	tcgcgtatt	6540
tagaaaagaga	gagcaatatt	tcaagaatgc	atgcgtcaat	tttacgcaga	ctatctttct	6600
agggttaatc	tagaggatcc	tctagattaa	ccctagaaag	ataatcatat	tgtgacgtac	6660
gttaaagata	atcatgcgta	aaattgacgc	atgtgttttt	atcgggtctgt	atatacgaggt	6720
ttatttatta	atttgaatag	atattaaagt	ttattatatt	tacacttaca	tactaataat	6780
aaattcaaca	aacaatttat	ttatgtttat	ttatttatta	aaaaaaaaaca	aaaactcaaa	6840
atttcttcta	aagtaacaaa	actttttaaac	attctctctt	ttacaaaaat	aaacttattt	6900
tgtactttta	aaacagtcac	gttgtattat	aaaataagta	attagcttaa	cttatacata	6960
atagaaacaa	attatactta	ttagtcagtc	cagaaacaac	tttggcacat	atcaatatta	7020
tgctctcgac	aaataacttt	tttgcatttt	ttgcacgatg	catttgccct	tcgccttatt	7080
ttagaggggc	agtaagtaca	gtaagtacgt	tttttcatta	ctggctcttc	agtactgtca	7140
tctgatgtac	caggcacttc	atlttgcaaaa	atattagaga	tattatcgcg	caaatatctc	7200
ttcaaagtag	gagcttctaa	acggttacgc	ataaacgatg	acgtcaggct	catgtaaagg	7260
ttttctcataa	atltttttg	actttgaacc	ttttctccct	tgctactgac	attatggctg	7320
tatataataa	agaattttat	gcaggcaatg	tttatcatct	cgtacaataa	tgccataggc	7380
cacctattcg	tcttctact	gcaggtcatc	acagaacaca	tttggcttag	cgtgtccact	7440
ccgccttttag	tttgattata	atacataacc	atlttgcgggt	taccgggtact	ttcgttgata	7500
gaagcatcct	catcacaaga	tgataataag	tataccatct	tagctggctt	cgggtttatat	7560
gagacgagag	taaggggtcc	gtcaaaaaca	aacatcgatg	ttcccactgg	cctggagcga	7620
ctgttttttca	gtacttccgg	tatctcgcgt	ttgtttgatc	gcacgggtacc		7670

<210> 58

<211> 286

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pIAO-pL amino acid sequence

<400> 58

Trp	His	Lys	Ile	Leu	Ser	Ala	Gly	Ile	Glu	Ala	Ile	Gln	Arg	Asn	Arg	1	5	10	15
Glu	Asp	Met	Thr	Ala	Gln	Ser	Gly	Thr	Thr	Tyr	Ile	Val	Val	Ile	Arg	20	25	30	
Ser	Pro	Lys	Gly	Asp	Pro	Gly	Leu	Ala	Ala	Ile	Ile	Gly	Arg	Ser	Gly	35	40	45	
Arg	Glu	Gly	Ala	Gly	Ser	Lys	Asp	Ala	Ile	Phe	Trp	Gly	Ala	Pro	Leu	50	55	60	
Ala	Ser	Arg	Leu	Leu	Pro	Gly	Ala	Val	Lys	Asp	Ala	Glu	Met	Trp	Asp	65	70	75	80
Ile	Leu	Gln	Gln	Arg	Ser	Ala	Leu	Thr	Leu	Leu	Glu	Gly	Thr	Leu	Leu	85	90	95	
Lys	Arg	Leu	Thr	Thr	Ala	Met	Ala	Val	Pro	Met	Thr	Thr	Asp	Arg	Glu	100	105	110	
Asp	Asn	Pro	Ile	Ala	Glu	Asn	Leu	Glu	Pro	Glu	Trp	Arg	Asp	Leu	Arg	115	120	125	
Thr	Val	His	Asp	Gly	Met	Asn	His	Leu	Phe	Ala	Thr	Leu	Glu	Lys	Pro	130	135	140	
Gly	Gly	Ile	Thr	Thr	Leu	Leu	Leu	Asn	Ala	Ala	Thr	Asn	Asp	Ser	Met	145	150	155	160
Thr	Ile	Ala	Ala	Ser	Cys	Leu	Glu	Arg	Val	Thr	Met	Gly	Asp	Thr	Leu	165	170	175	
His	Lys	Glu	Thr	Val	Pro	Ser	Tyr	Glu	Val	Leu	Asp	Asn	Gln	Ser	Tyr	180	185	190	
His	Ile	Arg	Arg	Gly	Leu	Gln	Glu	Gln	Gly	Ala	Asp	Ile	Arg	Ser	Leu	195	200	205	
Val	Ala	Gly	Cys	Leu	Leu	Val	Lys	Phe	Thr	Ser	Met	Met	Pro	Phe	Arg	210	215	220	
Glu	Glu	Pro	Arg	Phe	Ser	Glu	Leu	Ile	Lys	Gly	Ser	Asn	Leu	Asp	Leu	225	230	235	240
Glu	Ile	Tyr	Gly	Val	Arg	Ala	Gly	Leu	Gln	Asp	Glu	Ala	Asp	Lys	Val	245	250	255	
Lys	Val	Leu	Thr	Glu	Pro	His	Ala	Phe	Val	Pro	Leu	Cys	Phe	Ala	Ala	260	265	270	

Phe Phe Pro Ile Leu Ala Val Arg Phe His Gln Ile Ser Met
 275 280 285

<210> 59

<211> 240

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pIAO-pL amino acid sequence

<400> 59

Arg Tyr Phe Tyr Ala Tyr Pro Ala Arg Leu His Val Leu Gln Val Tyr
 1 5 10 15
 Tyr Ser Leu Arg Ala Cys Ala Lys Ile Val Gly Glu Arg Leu Ile Arg
 20 25 30
 Thr Thr Ser Arg Gln Asp Thr Asn Arg Lys Gly Phe Leu Ala Asn Trp
 35 40 45
 Lys Asp Tyr Val Glu Tyr Trp Gln Val Asp His Pro Asn Lys Asn Trp
 50 55 60
 Val Lys Ala Gln Lys Pro Tyr Val Asp Val Ser Val Thr Arg Phe Trp
 65 70 75 80
 Thr Val Thr Arg His Asp Phe Ser Gly Arg Ser His Leu Lys Thr His
 85 90 95
 Val Ser Pro Tyr Leu Ser Gly Met Asn Lys Cys Ser Tyr Ile Cys Arg
 100 105 110
 Lys Arg Ser Thr His Ala Thr Tyr Lys Gln Gly Asn Ser Met Thr Asp
 115 120 125
 Phe Phe Gly Phe Arg Asp Val Ser Glu Asn Cys Leu Arg Val Cys Gln
 130 135 140
 Cys Leu Asp Ile Trp Leu Pro Arg His Val His Pro Arg Lys Glu Ser
 145 150 155 160
 Ser Asp Asn Gly Ser Tyr Trp Leu Phe Cys Leu Asn Arg Glu His Ser
 165 170 175
 Ile Tyr Cys Arg Asp Tyr Ile Gly Ser Thr Glu Ile Ile Asp Cys Lys
 180 185 190
 Asp Met Lys Cys Asn Ala Phe Asn Asp Tyr Phe Ile Thr Gln Leu Met
 195 200 205
 Phe Thr Pro Ile Tyr Gln Pro Val Tyr Ala Asp Ser Arg Lys Ser Ile
 210 215 220
 Gln Cys His Glu Thr Cys Leu Ser Pro Arg Glu His Val Lys Phe Asn
 225 230 235 240

<210> 60
 <211> 933
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pIAO-pL amino acid sequence

<400> 60

Lys	Gln	Cys	Trp	Val	Leu	Gln	Tyr	His	Tyr	Arg	Gly	Ala	Ser	Leu	Gln	1	5	10	15
Phe	Glu	Ala	Ser	Val	Ser	Pro	Ser	Trp	Ser	Asp	Asp	Gly	Gly	Ile	Gly	20	25	30	
Met	His	Phe	Gly	Asp	Ile	Asn	Leu	Trp	Thr	Gly	Glu	Glu	Ala	His	Leu	35	40	45	
Leu	His	Arg	His	Ser	Thr	Glu	Met	Leu	Gln	Gln	Gln	Ser	Tyr	Arg	Ser	50	55	60	
Ile	Asn	Phe	Gln	Phe	Asp	Gly	Arg	Trp	Gln	His	Pro	Gly	Tyr	Asn	Leu	65	70	75	80
Glu	Arg	Thr	Gly	Cys	Arg	Leu	Gly	Asn	Glu	Ser	Pro	Phe	Val	Tyr	Pro	85	90	95	
Thr	Tyr	Met	Asp	Ser	Leu	Pro	Leu	Asp	Trp	Arg	Asp	Phe	Cys	Ala	Ala	100	105	110	
Thr	Leu	Arg	Asp	Pro	Tyr	Asn	Glu	Gln	Pro	Gly	Leu	Gly	Leu	Trp	Asn	115	120	125	
Val	Arg	Glu	Ala	Val	Gln	Ala	Leu	Gln	Cys	Asn	Leu	Gly	Ile	Arg	Ala	130	135	140	
Pro	His	Pro	Thr	Asp	Ser	Ala	Val	Glu	Val	Asp	Val	Thr	Ile	Ala	Met	145	150	155	160
Gln	Gly	Ser	Gly	Asp	Ile	Arg	Tyr	Thr	Lys	Arg	Ser	Ile	Phe	Leu	Thr	165	170	175	
Lys	Gly	Gln	His	Gln	Trp	Ala	His	Ala	Thr	Thr	Ile	Leu	Val	Ala	Asp	180	185	190	
Ala	Leu	Thr	Asp	Ala	Thr	Cys	Gln	Leu	Leu	Ala	Ala	Glu	Ala	Gln	Tyr	195	200	205	
His	Gly	Ala	Ala	Lys	Trp	Arg	Glu	Val	Trp	Ala	Asn	Pro	Asp	Ile	Arg	210	215	220	
Thr	Ala	Glu	Ser	Val	Gly	Ile	Asp	Asn	Asp	Leu	Pro	Ala	Arg	Thr	Phe	225	230	235	240

Gln Asp Arg Leu Pro Thr Leu Leu Gln Lys Lys Asp Gly Ile Trp Met
 245 250 255
 Gln Ser Leu Phe Gly Ser Gln Arg Asn Phe Gln Trp Arg Lys Asn Gly
 260 265 270
 Leu Glu Ile Cys Phe Asp Met Glu Ser Thr Thr Leu His Pro Ile Ala
 275 280 285
 His Ser Ala Ala Pro Leu Thr Val Ser Leu Asn Glu Ala Leu Arg Trp
 290 295 300
 Gln Gln Trp Ala Ser Ile His Gly Ala Glu Ser Trp Ala Thr Ala Asn
 305 310 315 320
 Pro Gln Val Val Arg Val Thr Leu Trp Leu Gln Gly Ala Ser Glu Pro
 325 330 335
 Gln Pro Leu Glu Pro Leu Glu Ile Leu Gln Lys Gly Gln Pro Ala Val
 340 345 350
 Asp Leu Pro Val Glu Gly Ser Ala Leu Pro Lys Gly Asp Leu Ala Val
 355 360 365
 Met Trp His Leu Leu Glu Asn Asp Ser His Arg Phe Leu Tyr Glu Ser
 370 375 380
 Thr Val Glu Ile Thr Gln Gly Ser Leu Arg Phe Gln Phe Phe Gln Gln
 385 390 395 400
 Gln His Lys Ala Glu Thr Leu Ala Pro His Pro Thr Arg Asp Ala Phe
 405 410 415
 Val Leu Gly Asn Met Cys Phe Gln Arg Asp Asn Pro Thr Asp Gly Phe
 420 425 430
 Asp Gly Gly Tyr Ala Ser Trp Pro Asn Gly Asn Glu Asp Tyr Lys Ile
 435 440 445
 Leu Ser Gln Asp Val Trp Asp Trp Val Phe Gly Gly Gln Leu Arg Pro
 450 455 460
 Tyr Gln Arg Phe Ala Gln Trp Tyr Lys Ala Phe Gly Gly Leu Ser Asn
 465 470 475 480
 Gly Met Ala His Ala Tyr Glu Cys Leu Ile Leu Pro Arg Thr Glu Gly
 485 490 495
 Pro Leu Ser Leu Trp Lys Lys Ile Ser Trp Lys Pro Val Ala Pro Phe
 500 505 510
 Pro Gln Asp Glu Asp Val Arg Ala Tyr Met Pro Cys Ile Ile Asp Thr
 515 520 525
 Ala Thr Thr Asp Ala Gly Gly Gly Glu Tyr Gln Val Pro Arg Ser Pro
 530 535 540

Asp Val Ser Lys Ile Trp Arg Tyr Leu Ala Asp His Asn Ala Gly His
 545 550 555 560
 Gly Ser Glu Asn Gly Leu Ser Trp Ile Ile Val Ser Pro His Asn Arg
 565 570 575
 Asp Arg Gln Val Met Arg Thr Val Arg Glu Ser Met Ala Pro Leu Trp
 580 585 590
 Arg Pro Asp Asp Thr Leu Arg Asn Met Pro Val Met Gly His Thr Glu
 595 600 605
 Ile Asn Ala Glu Asp Val Val Tyr Leu Gly Tyr Arg Asp Cys Leu Thr
 610 615 620
 Tyr Trp Leu Pro His Asn Pro Tyr His Ser Cys Arg Val Ala Asn Phe
 625 630 635 640
 Asn Asn Gln Lys Met Leu Leu Ile Asp Gln Val Met Thr Gln Glu Asp
 645 650 655
 Met Val Gln Gly His Leu Pro His His Glu His Arg Asn Val Gly Arg
 660 665 670
 Ile Leu Leu Pro Lys Gly Asn Leu Leu Leu Leu Gly Asn Glu Ile Arg
 675 680 685
 Val Glu Arg Phe Gly Val Asp Cys Ala Glu Ala Glu Ile Leu Thr Gly
 690 695 700
 Asp Ala Thr His Leu Glu Val Val Ala Arg Tyr Leu Asn Pro Ile Glu
 705 710 715 720
 Ala Ser Trp Leu Lys Pro Asn Glu Val Asn Leu Arg Leu Thr Val Arg
 725 730 735
 Asp Ala Tyr Gly Gly Arg Glu Asp Ile Ile Glu Gly Gly Phe Pro Ala
 740 745 750
 Thr Gly Ser Ala Val Gln Thr Glu Gly Gln Trp Leu Ser Val Thr Val
 755 760 765
 Arg Leu Tyr Asp Arg Leu Glu Gly Cys Met Gln Val Glu Ala Glu Leu
 770 775 780
 Val Ala Arg Ser Phe Asp Asp Asn Phe Arg Thr Ala Val His Phe Asp
 785 790 795 800
 Ser Ile Gln Thr Thr Pro Lys His Leu Leu Ser Val Asp Arg Phe Ile
 805 810 815
 Gly Ser Met Arg Trp Met Asp Gln Asp Glu Leu Tyr Ser Gly Asp Ser
 820 825 830
 Trp Arg Leu Val Met Val Ala Leu Arg Asn Glu Gly Ala Arg Leu Phe
 835 840 845

Ala Ser Leu Asp Phe Glu Ser Pro Leu Arg Ser Asp Gln Gly Tyr Gly
 850 855 860

Val Trp Arg Gly Asn Cys Trp Leu His Phe Ala Ser Asn Val Gly Asp
 865 870 875 880

Phe Ile Ile Arg Thr Gln Gly Glu Gln Leu Trp Ser Glu Asp Val Asn
 885 890 895

Phe Thr Leu Ser Tyr Cys Gly Thr Pro Asn Glu Thr Pro Val Phe Pro
 900 905 910

Pro Asn Val Thr Ile Pro Tyr Thr Val Asn Thr Tyr Ile Pro Ala Asp
 915 920 925

Tyr Gly His Met Gln
 930

<210> 61
 <211> 110
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: pIAO-pL amino
 acid sequence

<220>
 <221> MOD_RES
 <222> (110)
 <223> Any amino acid

<400> 61
 Val Leu Leu Thr Glu Trp Asn Ser Pro Val Val Val Pro Asp Thr Lys
 1 5 10 15

Lys Asn Cys Phe Gln Ser Phe Leu Leu Ile Ser Ile Glu Ser Trp Cys
 20 25 30

Arg Tyr Asp Glu Thr Ala Leu Asp Leu Asn Gln Phe Gly Ile Phe Phe
 35 40 45

Arg Thr Thr Tyr Cys Lys Thr Arg Arg Ile Asn Ala Gln Arg Gln Ser
 50 55 60

Val Ser Thr Gly Arg Tyr Val Ser Arg Arg Tyr Arg Glu Pro Arg Arg
 65 70 75 80

Lys Arg Ser Arg Ile Asn Gln Phe Gly Trp Cys Ala Arg Arg Arg Ala
 85 90 95

Ser Ser Cys Leu Pro Tyr Ala Arg Arg Phe Phe Met Gly Xaa
 100 105 110

<210> 62
 <211> 229

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: pIAO-pL amino acid sequence

<400> 62

```

Asp Thr Trp Phe Cys Ser Gln Cys Met Asp Ile Asn His Glu Arg Cys
 1           5           10           15
Ile Val Lys Lys Cys Lys Lys Cys Ser Ala Asn Ala Lys Arg Arg Ile
          20           25           30
Lys Ser Pro Cys Tyr Thr Cys Tyr Thr Arg Lys Lys Met Val Pro Glu
          35           40           45
Glu Thr Ser Asp Asp Ser Thr Gly Pro Val Glu Asn Pro Leu Ile Asn
          50           55           60
Ser Ile Asn Asp Arg Leu Tyr Arg Lys Leu Thr Pro Ala Glu Leu Arg
          65           70           75           80
Asn Arg Met Phe Ser Ser Thr Leu Ser Met Tyr Leu Asn Arg Met Phe
          85           90           95
Lys Lys Arg Ser Gln Val Lys Glu Gly Lys Ser Ser Val Asn His Ser
          100          105          110
Tyr Ile Ile Phe Ser Asn Ile Cys Ala Ile Asn Ile Met Gly Tyr Leu
          115          120          125
Leu Ala Met Pro Trp Arg Asn Thr Lys Arg Ser Cys Thr Met Val Ser
          130          135          140
Cys Met Gln Asp Leu Thr Asp Val Gly Gly Lys Thr Gln Asn Tyr Tyr
          145          150          155          160
Met Val Met Gln Pro Lys Gly Thr Ser Glu Asn Ile Ser Ala Asp Glu
          165          170          175
Asp Cys Ser Ser Leu Leu Tyr Val Met Lys Ala Pro Lys Pro Lys Tyr
          180          185          190
Ser Val Leu Thr Leu Pro Gly Asp Phe Cys Phe Met Ser Thr Gly Val
          195          200          205
Pro Arg Ser Arg Ser Asn Lys Leu Val Glu Pro Ile Glu Arg Lys Asn
          210          215          220
Ser Arg Val Thr Gly
          225

```

<210> 63

<211> 9984

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
pIAO-p/L-Lambda-2.2kb sequence

<400> 63

```

aacgcgcggg gagaggcggg ttgcgtattg ggcgctcttc cgttctctcg ctactgact 60
cgctgcgctc ggtcggttcgg ctgcggcgag cggatcagc tcaactcaaag gcggtaatat 120
ggttatccac agaatacagg gataacgcag gaaagaacat gtgagcaaaa ggccagcaaa 180
aggccaggaa ccgtaaaaaag gccgcgttgc tggcggtttt ccataggctc cgccccctg 240
acgagcatca caaaaatcga cgctcaagtc agaggtggcg aaaccgcaca ggactataaa 300
gataccaggc gtttccccct ggaagctccc tcgtgcgctc tccgtgtccg accctgccgc 360
ttaccggata cctgtccgcc tttctccctt cgggaagcgt ggcgctttct caatgctcac 420
gctgtaggta tctcagttcg gtgtaggctc ttcgctccaa gctgggctgt gtgcacgaac 480
ccccggttca gccgcaccgc tgcgccttat ccggtaaacta tcgtcttgag tccaaccgag 540
taagacacga cttatcgcca ctggcagcag ccactggtaa caggattagc agagcgaggt 600
atgtaggcgg tgctacagag ttcttgaagt ggtggcctaa ctacggctac actagaagga 660
cagtatttgg tatctgcgct ctgctgaagc cagttacctt cggaaaaaga gttggtagct 720
cttgatccgg caaacaacc accgctggta gcggtggtt ttttgtttgc aagcagcaga 780
ttacgcgcag aaaaaaagga tctcaagaag atcctttgat ctttctctac gggctctgacg 840
ctcagtggaa cgaaaactca cgttaaggga ttttggtcat gagattatca aaaaggatct 900
tcacctagat ctttttaaat taaaaatgaa gttttaaatc aatctaaagt atatatgagt 960
aaacttggtc tgacagttac caatgcttaa tcagtggagc acctatctca gcgatctgtc 1020
tatttcggtc atccatagtt gcctgactcc ccgctgtgta gataactacg atacgggagg 1080
gcttaccatc tggccccagt gctgcaatga taccgcgaga ccacgcctca ccggtccag 1140
atctatcagc aataaaccag ccagccggaa gggccgagcg cagaagtggg cctgcaactt 1200
tatccgcctc catccagtct attaatgttt ccgggaagc tagagtaagt agttcgccag 1260
ttaatagttt gcgcaacggt gttgccattg ctacaggcat cggtgtgtca cgtctcgt 1320
ttggtatggc ttcattcagc tccggttccc aacgatcaag gcgagttaca tgatccccc 1380
tgttgtgcaa aaaagcgggt agtccttctg gtctccgat cgttgtcaga agtaagttgg 1440
ccgcagtgtt atcactcatg gttatggcag cactgcataa ttctcttact gtcatgccat 1500
ccgtaagatg cttttctgtg actggtgagt actcaaccaa gtcattctga gaatagtgt 1560
tgccggcgacc gagttgctct tgcccgcgct caatacggga taataccgcg ccacatagca 1620
gaacttttaa agtgctcatc atttgaaaac gttcttcggg gcgaaaactc tcaaggatct 1680
taccgctgtt gagatccagt tcgatgtaac ccactcgtgc acccaactga tcttcagcat 1740
cttttacttt caccagcgtt tctgggtgag caaaaacagg aaggcaaaat gccgcaaaaa 1800
agggataaag ggcgacacgg aaatgttgaa tactcatact cttccttttt caatattatt 1860
gaagcattta tcagggttat tgtctcatga gcggtatcat atttgaatgt atttagaaaa 1920
ataaacaatt aggggttccg cgcacatttc cccgaaaagt gccacctgac gtctaagaaa 1980
ccattattat catgacatta acctataaaa ataggcggt caccggggccc tgagggtgaac 2040
caattgtcac acgtaatat acgacaacta ccgtgcacag gctttgataa ctcttcacg 2100
tagtattcac cgagtgttac tccgttggte tgtgttctc tcccaaata aggcattcca 2160
tttatcatat acttcgtacc actgtcacac atcatgagga tttttattcc atacttactt 2220
ggcttgtttg ggatatacat cctaaacgga caccgtctc taaaaccaag taactgttca 2280
tctatggcca aatgagcccc tggagtgtaa ttttctcgaa actgatggat aaagagatcc 2340
catatttttc taacaggagt aaatacatcg ttttctcgaa gtgtgggccc tatacttttg 2400
tcatccattc taagacatcg tatcaaaaaa tccaaaacga tccacagact cattacagag 2460
acgtacacat tgacaaaagt cgatccaaag aggtcatctg tggacatgtg gttatctttt 2520
ctcactgctg tcattaccag aataccaaag aaagcataga tttcatcttc attcgtgtca 2580
cgaaatgtag cacctgtcat agattcccga cgtttcaatg atatctcagc atttgtccat 2640
tttacaattt gcgaaattat ctcatcagta aaaaatagtt tgaagcataa aagtggttca 2700
tatatatgtc ggcacatacg cgtcggacct ctttgagatc tgacaatgtt cagtgcagag 2760
actcggctac cgctcgtgga ctttgaagtt aaattcagat ataaagacgc tgaaaatcat 2820
ttgattttcg ctctaacata ccaccctaaa gattataaat ttaatgaatt attaaaatac 2880
gtacaacaat tgtctgtaaa tcaacaacgc acagaatcta gcgttaata aatgtactaa 2940
taacaatgta tcgtgtttta atacgccgga ccagtgaaca gaggtgcgtc tggtgcaaac 3000
tcctttactt tgaacaccag ggaaacttca aggagaattt cctcctcttc agcagagtcg 3060
gtaccgggtc cccggggatc cccctgtccc ggttattatt atttttgaca ccagaccaac 3120

```

tggtaatggt	agcgaccggc	gctcagctgg	aattccgcgc	atactgacgg	gctccaggag	3180
tcgtcgccac	caatccccat	atggaaaccg	tcgatattca	gccatgtgcc	ttcttccgcg	3240
tgacgagat	ggcgatggct	ggtttccatc	agttgtgtgt	gactgtagcg	gctgatgttg	3300
aactggaagt	cgccgcgcca	ctgggtgtgg	ccataattca	attcgcgcg	cccgcagcgc	3360
agaccgtttt	cgctcgggaa	gacgtacggg	gtatacatgt	ctgacaatgg	cagatcccg	3420
cggtcaaaac	agggcggcagt	aaggcggtcg	ggatagtttt	cttgccggccc	taatccgagc	3480
cagtttaccc	gctctgctac	ctgcgccagc	tggcagttca	ggccaatccg	cgccggatgc	3540
ggtgtatcgc	tcgccacttc	aacatcaacg	gtaatcgcca	tttgaccact	accatcaatc	3600
cggtaggttt	tccggctgat	aaataaggtt	ttcccctgat	gctgccacgc	gtgagcggtc	3660
gtaatcagca	ccgcacacgc	aagtgtatct	gccgtgcact	gcaacaacgc	tgcttcggcc	3720
tggtaatggc	cgccgcgctt	ccagcggtcg	acccaggcgt	tagggccaat	gcgggtcgct	3780
tcacttacgc	caatgtcggt	atccagcggt	gcacgggtga	actgatcgcg	cagcggcgctc	3840
agcagttggt	ttttatcgcc	aatccacatc	tgtgaaagaa	agcctgactg	gcgggttaaat	3900
tgccaacgct	tattaccag	ctcgatgcaa	aaatccattt	cgctgggtgt	cagatgcggg	3960
atggcggtgg	acgcggcggg	gagcgtcaca	ctgaggtttt	ccgccagacg	ccactgctgc	4020
caggcgctga	tgtgcccggc	ttctgacct	gcgggtcgct	tcgggtgcac	tacgcgtact	4080
gtgagccaga	gttgcccgcc	gctctccggc	tcgggtagtt	caggcagttc	aatcaactgt	4140
ttaccttggt	gagcgacatc	cagaggcact	tcaccgcttg	ccagcggctt	accatccagc	4200
gccaccatcc	agtgcaggag	ctcggttatcg	ctatgacgga	acaggtattc	gctggtcact	4260
tcgatggttt	gcccggataa	acggaaactgg	aaaaactgct	gctggtgttt	tgcttccgctc	4320
agcgctggat	gcggcggtgc	gtcggcaaa	accagaccgt	tcatacagaa	ctggcgatcg	4380
ttcggcgctat	cgccaaaatc	accgcggtaa	gccgaccacg	ggttgccggt	ttcatcatat	4440
ttaatcagcg	actgatccac	ccagtcaccg	acgaagccgc	cctgtaaaacg	gggatactga	4500
cgaaacgcct	gccagtattt	agcgaaaaccg	ccaagactgt	tacccatcgc	gtgggcgtat	4560
tcgcaaagga	tcagcggggc	cgctctctcca	ggtagcgaaa	gccatttttt	gatggaccat	4620
ttcggcacag	ccgggaagg	ctgggtcttca	tccacgcgcg	cgtagatcgg	gcaataata	4680
tcgggtggccg	tgggtgcggc	tccgcgcgct	tcatactgca	ccgggcggga	aggatcgaca	4740
gattttgatcc	agcgatacag	cgcgctcgtga	ttagcgcgct	ggcctgattc	attccccagc	4800
gaccagatga	tcacactcgg	gtgattacga	tcgcgctgca	ccattcgcgt	tacgcgttcg	4860
ctcatcgccg	gtagccagcg	cggatcatcg	gtcagacgat	tcattggcac	catgcggtgg	4920
gtttcaatat	tggcttcac	caccacatac	aggccgtagc	ggtcgcacag	cggtgtaccac	4980
agcggatggt	tcggataatg	cgaacagcgc	acggcggttaa	agttgtttctg	cttcatcagc	5040
aggatatcct	gcaccatcgt	ctgctcatcc	atgacctgac	catgcagagg	atgatgctcg	5100
tgacggttaa	cgcttcgaat	cagcaacggc	ttgccgttca	gcagcagcag	accattttca	5160
atccgcacct	cgcggaacc	gacatcgacg	gcttctgctt	caatcagcgt	gccgtcggcg	5220
gtgtgcagtt	caaccaccgc	acgatagaga	ttcgggattt	cggcgctcca	cagtttcggg	5280
ttttcgacgt	tcagacgtag	tgtgacgca	tcggcataac	caccacgctc	atcgataatt	5340
tcaccgcgca	aaggcgcggt	gccgctggcg	acctgcgttt	cacctgcca	taaagaaact	5400
gttaccgcgt	ggtagtcacg	caactcgccg	cacatctgaa	cttcagcctc	cagtacagcg	5460
cggctgaaat	catcattaaa	gcgagtgga	acatggaaat	cgctgatttg	tgtagtcggg	5520
ttatgcagca	acgagacgtc	acggaaaaatg	ccgctcatcc	gccacataatc	ctgatcttcc	5580
agataactgc	cgtcactcca	acgcagcacc	atcaccgcga	ggcggttttc	tccggcgcg	5640
aaaaatgcgc	tcagggtcaaa	ttcagacggc	aaacgactgt	cctggccgta	accgacccag	5700
cgcccggtgc	accacagatg	aaacgcgcg	ttaacgccat	caaaaataat	tcgcgtctgg	5760
ccttcctgta	gccagctttc	atcaacatta	aatgtgagcg	agtaacaacc	cgtcggattc	5820
tccgtgggaa	caaacggcg	attgaccgta	atgggtagg	ttacgttggg	gtagatgggc	5880
gcacgtaac	cgtgcactcg	ccagtttgag	gggacgacga	cgggatccgt	ttttttatta	5940
caaaactggt	acgaaaacag	taaaatactt	atttatccg	accaacaatg	tttattctta	6000
cctctaatag	tcctctgtgg	caagggtcaag	attctgttag	aagccaatga	agaacctggt	6060
tgttcaataa	cattttgttc	gtctaataat	tcactacgct	tgacgttggc	tgacacttca	6120
tgtacctcat	ctataaacgc	ttcttctgta	tcgctctgga	cgctcttact	tacgtgatct	6180
gatatttcac	tgtcagaatc	ctcacciaaca	agctcgatcat	cgcttgcag	aagagcagag	6240
aggatatgct	catcgctcaa	agaacatccc	attttattat	atattagtea	cgatatctat	6300
aacaagaaaa	tatatatata	ataagttatc	acgtaagtag	aacatgaaat	aacaatatta	6360
attatcgat	gagttaaatc	ttaaaagtca	cgtaaaagat	aatcatgcgt	cattttgact	6420
cacgcggtcg	ttatagttca	aaatcagtg	cacttaccgc	attgacaagc	acgcctcagc	6480
cgagctccaa	gcggcgactg	agatgtccta	aattgcaaac	agcgacggat	tcgcgctatt	6540
tagaaagaga	gagcaatatt	tcaagaatgc	atgcgtcaat	tttacgcaga	ctatctttct	6600

agggttaatc	tagcttttct	aatttaacct	ttgtcaggtt	accaactact	aaggttgtag	6660
gctcaagagg	gtgtgtcctg	tcgtaggtaa	ataactgacc	tgctcgagctt	aatatctctat	6720
attgtttgttc	tttctgcaaa	aaagtgggga	agtgaagtaat	gaaattatatt	ctaacatttta	6780
tctgcatcat	accttccgag	catttattaa	gcatttcgct	ataagttctc	gctggaagag	6840
gtagtttttt	cattgtactt	taccttcac	tctgttcatt	atcatcgctt	ttaaaacggt	6900
tcgaccttct	aatcctatct	gaccattata	atTTTTtaga	atgggttcat	aagaaagctc	6960
tgaatcaacg	gactgcgata	ataagtgggtg	gtatccagaa	tttgtcactt	caagtaaaaa	7020
cacctcacga	gttaaaacac	ctaagttctc	accgaatgtc	tcaatatccg	gacggataat	7080
atTTattgct	tctcttgacc	gtaggacttt	ccacatgcag	gatttttgaa	cctcttgag	7140
tactactggg	gaatgagttg	caattattgc	tacaccattg	cgtgcatcga	gtaagtcgct	7200
taatgttcgt	aaaaaagcag	agagcaaagg	tggatgcaga	tgaacctctg	gttcatcgaa	7260
taaaactaat	gacttttcgc	caacgcacat	tactaatctt	gtgatagtaa	ataaaacaat	7320
tgcatgtcca	gagctcattc	gaagcagata	tttctggata	ttgtcataaa	acaatttagt	7380
gaatttatca	tcgtccactt	gaatctgtgg	ttcattacgt	cttaactctt	catattttaga	7440
aatgaggctg	atgagttcca	tatttgaaaa	gttttcatca	ctacttagtt	ttttgatagc	7500
ttcaagccag	agttgtcttt	ttctatctac	tctcatacaa	ccaataaatg	ctgaaatgaa	7560
ttctaagcgg	agatcgccct	gtgattttaa	actattgctg	gcagcattct	tgagtccaat	7620
ataaaagtat	tgtgtacctt	ttgtctgggtc	aggttgttct	ttagggaggag	taaaaggatc	7680
aatgcacta	aacgaaactg	aaacaagcga	tcgaaaatat	ccctttggga	ttcttgactc	7740
gataagtcta	ttatttttcag	agaaaaata	ttcattgttt	tctgggttgg	tgattgcacc	7800
aatcattcca	ttcaaaattg	ttgtttttacc	acacccattc	cgcccgataa	aagcatgaat	7860
gttcgtgctg	ggcatagaat	taaccgtcac	ctcaaaaggt	atagttaaat	cactgaatcc	7920
gggagcactt	tttctattaa	atgaaaagtg	gaaatctgac	aattctggca	aaccatttaa	7980
cacacgtgcg	aactgtccat	gaattttctga	aagagttacc	cctctaagta	atgaggtgtt	8040
aaggacgctt	tcatttttcaa	tgtcggctaa	tcgatttggc	catactacta	aatcctgaat	8100
agctttaaga	aggttatggt	taaaaccatc	gcttaatttg	ctgagattaa	catagtagtc	8160
aatgctttca	cctaaggaaa	aaaacatttc	aggagttga	ctgaattttt	tatctattaa	8220
tgaataagtg	cttacttctt	cttttttgacc	tacaaaacca	atTTtaacat	ttccgatatc	8280
gcattttttca	ccatgtctcat	caaagacagt	aagataaaaac	attgtaacaa	aggaatagtc	8340
attccaacca	tctgtctcgta	ggaatgcctt	atTTttttct	actgcaggaa	tatacccgcc	8400
tctttcaata	acactaaact	ccaacatata	gtaaccctta	atTTttattaa	aataaccgca	8460
atTTatttgg	cggcaacaca	ggatctctct	tttaagttac	tctctattac	atagcttttc	8520
catctaaaaa	ttagtagtat	tgaacttaac	ggggcatcgt	attgtagttt	tccatattta	8580
gctttctgct	tccttttgga	taaccactg	ttattcatgt	tgcatggtgc	actgtttata	8640
ccaacgatat	agtctattaa	tgcatatata	gtatcgccga	acgattagct	cttcaggctt	8700
ctgaagaagc	gtttcaagta	ctaataagcc	gatagatagc	cacggacttc	gtagccattt	8760
ttcataagtg	ttaaacttccg	ctcctcgctc	ataacagaca	ttcactacag	ttatggcgga	8820
aaggatgca	tgtctgggtgt	ggggaagtcg	tgaagaaaaa	gaagtcagct	gcgtcgtttg	8880
acatcactgc	tatcttctta	ctgggttatgc	aggctgtagt	gggtggcaca	caaagctaga	8940
ttaaccctag	aaagataatc	atattgtgac	gtacgttaaa	gataatcatg	cgtaaaattg	9000
acgcagtgtg	ttttatcggt	ctgtatatcg	aggtttattt	attaatttga	atagatatta	9060
agttttatta	tattttacact	tacatactaa	taataaatct	aacaaacaat	ttattttatgt	9120
ttattttattt	attaaaaaaa	aacaaaaact	caaaaattct	tctaaaagtaa	caaaaactttt	9180
aaacattctc	tctttttacaa	aaataaaactt	atTTttgtact	ttaaaaacag	tcattgttga	9240
ttataaaaata	agtaattagc	ttaaacttata	cataatagaa	acaaattata	cttatttagtc	9300
agtccagaaa	caactttggc	acatatcaat	attatgctct	cgacaaataa	ctttttttgca	9360
ttttttgcac	gatgcatttg	ccttttcgctt	tatttttagag	gggcagtaag	tacagtaagt	9420
acgttttttc	attactggct	cttcagtact	gtcatctgat	gtaccaggca	cttcatttgg	9480
caaaatatta	gagatattat	cgcgcaata	tctcttcaaa	gtaggagctt	ctaaaacggtt	9540
acgcataaac	gatgacgtca	ggctcatgta	aaggtttctc	ataaaattttt	tgcgactttg	9600
aaccttttct	cccttgctac	tgacattatg	gctgtatata	ataaaagaat	ttatgcaggc	9660
aatgttttatc	attccgtaca	ataatgccat	aggccacctt	ttcgtcttcc	tactgcagggt	9720
catcacagaa	cacatttgggt	ctagcgtgtc	cactccgcct	ttagtttgat	tataatacat	9780
aaccatttgc	ggtttaccgg	tactttcggt	gatagaagca	tcctcatcac	aagatgataa	9840
taagtatacc	atcttagctg	gcttcggttt	atatgagacg	agagtaaggg	gtccgtcaaa	9900
acaaaacatc	gatgttccca	ctggcctgga	gcgactggtt	ttcagtactt	ccggtatctc	9960
gcgtttgttt	gatcgcacgg	tacc				9984

<210> 64
 <211> 60
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:
 pIAO-p/L-Lambda-2.2kb amino acid sequence

<400> 64
 Lys Arg Ile Gly Lys Asp Pro Trp Ser Ser Leu Asn Tyr Ala Ser Pro
 1 5 10 15
 Thr Asp Gln Arg Leu Tyr Ile Val Ser Arg Asp Leu Lys Ile Asn Ile
 20 25 30
 Thr Thr Arg Glu Ala Phe Phe His Pro Leu Ser Tyr His Phe Lys Cys
 35 40 45
 Lys Asp Ala Asp Tyr Arg Gly Leu Met Ala Asn Arg
 50 55 60

<210> 65
 <211> 470
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:
 pIAO-p/L-Lambda-2.2kb amino acid sequence

<400> 65
 Ser Tyr Thr Arg Ala Pro Leu Pro Leu Lys Lys Met Thr Ser Arg Arg
 1 5 10 15
 Gln Glu Asn Asp Asp Ser Lys Phe Arg Asn Ser Arg Arg Ile Arg Asp
 20 25 30
 Ser Trp Leu Lys Lys Ser His Asn Leu Phe Ala Arg Phe Arg Val Ala
 35 40 45
 Ile Ile Leu Pro Pro Ile Trp Phe Lys Asp Ser Thr Phe Val Gly Ser
 50 55 60
 Asn Phe Cys Arg Leu Glu Arg Ile Asp Tyr Gly Ser Pro Tyr Tyr Lys
 65 70 75 80
 Asn Ser Arg Lys Val Thr Pro Ser Glu Val His Leu Ile Lys Ser Gly
 85 90 95
 Arg Ala Thr Ser Ser Pro Phe Ser Asn Cys Asn Asn Ser Cys Trp Gln
 100 105 110
 Thr Cys Arg Thr Leu Arg Lys Ile Asn Thr Phe Phe Cys Leu Ala Phe
 115 120 125

Thr Ser Ala Ser Ser Gly Arg Thr Arg Ile Phe Ser Ile Val Lys Arg
 130 135 140
 Trp Arg Cys Arg Ser Ile Lys His Tyr Tyr Ile Phe Cys Asn Cys Thr
 145 150 155 160
 Trp Leu Glu Asn Ser Ala Ser Ile Glu Pro Tyr Gln Leu Val Ile His
 165 170 175
 Ile Arg Gly Ser Ser Asp Thr Thr Thr Lys Val Arg Ile Phe His Pro
 180 185 190
 Gln His Thr Gly Tyr Lys Phe Leu Lys Lys Thr Lys Gln Tyr Ser Ala
 195 200 205
 Leu Thr Thr Lys Lys Arg Ser Glu Tyr Leu Trp Tyr Ile Ser Phe His
 210 215 220
 Ile Arg Leu Pro Ser Arg Arg Thr Ile Lys Phe Gln Gln Cys Cys Glu
 225 230 235 240
 Gln Thr Trp Tyr Leu Leu Ile Thr Tyr Arg Lys Ser Pro Thr Thr Arg
 245 250 255
 Ser Ser Tyr Phe Ser Ile Cys Val Phe Ser Phe Cys Ala Ile Ser Phe
 260 265 270
 Ile Gly Lys Pro Asn Lys Val Arg Tyr Thr Lys Leu Phe Phe Ile Gln
 275 280 285
 Lys Arg Pro Gln His Asn Cys Trp Asp Asn Trp Glu Phe Asn Asn Asn
 290 295 300
 Trp Val Trp Glu Ala Arg Tyr Phe Cys Ser His Glu His Gln Ala Tyr
 305 310 315 320
 Phe Gly Asp Gly Phe Thr Tyr Asn Phe Gln Ile Arg Ser Cys Lys Lys
 325 330 335
 Ile Phe Leu Pro Phe Arg Val Ile Arg Ala Phe Trp Lys Val Cys Thr
 340 345 350
 Arg Val Thr Trp Ser Asn Arg Phe Ser Asn Gly Arg Thr Ile Leu His
 355 360 365
 Pro Arg Lys Lys His Arg Ser Ile Ser Lys Ala Met Ser Ser Phe Gly
 370 375 380
 Ser Tyr Ser Ser Pro Thr Phe Trp Arg Lys Ile Gln Gln Ser Cys Leu
 385 390 395 400
 Leu His Lys Arg Leu Phe Phe Val Asn Pro Thr Ser Gln Ile Lys Arg
 405 410 415
 Asn Ile Phe Leu His Lys Ser Arg Arg Lys Ser Arg Cys Phe Trp Asn
 420 425 430

Cys Lys Arg Tyr Arg Met Lys Trp Ala Leu Cys Tyr Ser Leu Val Asn
 435 440 445

Tyr Cys Leu Phe Leu Glu Leu Trp Arg Ser Thr Pro Ile Gly Lys Lys
 450 455 460

Arg Ser Cys Ser Tyr Val
 465 470

<210> 66

<211> 229

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
 pIAO-P/L-Lambda-2.2kb amino acid sequence

<400> 66

Asp Thr Trp Phe Cys Ser Gln Cys Met Asp Ile Asn His Glu Arg Cys
 1 5 10 15

Ile Val Lys Lys Cys Lys Lys Cys Ser Ala Asn Ala Lys Arg Arg Ile
 20 25 30

Lys Ser Pro Cys Tyr Thr Cys Tyr Thr Arg Lys Lys Met Val Pro Glu
 35 40 45

Glu Thr Ser Asp Asp Ser Thr Gly Pro Val Glu Asn Pro Leu Ile Asn
 50 55 60

Ser Ile Asn Asp Arg Leu Tyr Arg Lys Leu Thr Pro Ala Glu Leu Arg
 65 70 75 80

Asn Arg Met Phe Ser Thr Leu Ser Met Tyr Leu Asn Arg Met Phe
 85 90 95

Lys Lys Arg Ser Gln Val Lys Glu Gly Lys Ser Ser Val Asn His Ser
 100 105 110

Tyr Ile Ile Phe Ser Asn Ile Cys Ala Ile Asn Ile Met Gly Tyr Leu
 115 120 125

Leu Ala Met Pro Trp Arg Asn Thr Lys Arg Ser Cys Thr Met Val Ser
 130 135 140

Cys Met Gln Asp Leu Thr Asp Val Gly Gly Lys Thr Gln Asn Tyr Tyr
 145 150 155 160

Met Val Met Gln Pro Lys Gly Thr Ser Glu Asn Ile Ser Ala Asp Glu
 165 170 175

Asp Cys Ser Ser Leu Leu Tyr Val Met Lys Ala Pro Lys Pro Lys Tyr
 180 185 190

Ser Val Leu Thr Leu Pro Gly Asp Phe Cys Phe Met Ser Thr Gly Val
 195 200 205

Pro Arg Ser Arg Ser Asn Lys Leu Val Glu Pro Ile Glu Arg Lys Asn
 210 215 220

Ser Arg Val Thr Gly
 225

<210> 67

<211> 7411

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
 pBSII-Act5c-orf sequence

<400> 67

ctaaattgta	agcggttaata	ttttgttaaa	attcgcgtta	aatttttgtt	aaatcagctc	60
attttttaac	caataggccg	aaatcggcaa	aatcccttat	aaatcaaaag	aatagaccga	120
gataggggtg	agtgttggtc	cagtttgga	caagagtcca	ctattaaaga	acgtggactc	180
caacgtcaaa	gggcgaaaaa	ccgtctatca	gggcgatggc	ccactacgtg	aaccatcacc	240
ctaatacaagt	tttttggggg	cgaggtgccg	taaagcacta	aatcggaacc	ctaaagggag	300
cccccgattt	agagcttgac	ggggaaagcc	ggcgaacgtg	gcgagaaagg	aaggggaagaa	360
agcgaaagga	gcgggcgcta	gggcgctggc	aagtgtagcg	gtcacgctgc	gcgtaaccac	420
cacaccgcgc	gcgcttaatg	cgccgctaca	gggcgcgtcc	cattcgccat	tcaggctgcg	480
caactgttgg	gaagggcgat	cggtgcgggc	ctcttcgcta	ttacgccagc	tggcgaaagg	540
gggatgtgct	gcaaggcgat	taagtgggt	aacgccaggg	ttttccagc	cacgacgttg	600
taaaacgacg	gccagtgagc	gcgcgtaata	cgactcacta	tagggcgaa	tgggtaccgg	660
gccccccctc	gaggtcgacg	gtatcgataa	gcttgatata	gaattctaaa	aaaaatcatg	720
aatggcatca	actctgaatc	aaatctttgc	agatgcacct	acttctcatt	tccactgtca	780
catcattttt	ccagatctcg	ctgcctgtta	tgtggcccac	aaaccaagac	acgtttttatg	840
gccattaaag	ctggctgata	gtcgccaaac	accaaataca	tatcaatatg	tacattcgag	900
aaagaagcga	tcaaagaagc	gtcttcgggc	gagtaggaga	atgcggagga	gaaggagaac	960
gagctgatct	agtatctctc	cacaatccaa	tgccaaactga	ccaactggcc	atattcggag	1020
caatttgaag	ccaatttcca	tcgcctggcg	atcgctccat	tcttggctat	atgtttttca	1080
ccgttcccgg	ggccattttc	aaagactcgt	cggttaagata	agattgtgtc	actcgctgtc	1140
tctcttcatt	tgtcgaagaa	tgtctgaggaa	tttcgcgatg	acgtcggcga	gtattttgaa	1200
gaatgagaat	aatttgtatt	tatacgaaaa	tcagttagt	gaattttcta	caaaaacatg	1260
ttatctatag	ataattttgt	tgcaaaatat	gttgactatg	acaaagattg	tatgtatata	1320
cctttaatgt	attctcattt	tcttatgtat	ttataatggc	aatgatgata	ctgatgatata	1380
tttaagatga	tgccagacca	caggctgatt	tctgcgtctt	ttgccgaacg	cagtgcatgt	1440
gcggttggtg	ttttttggaa	tagtttcaat	tttcggactg	tccgctttga	tttcagtttc	1500
ttggcttatt	caaaaagcaa	agtaaagcca	aaaaagcgag	atggcaatac	caaatgcggc	1560
aaaacggtag	tggaaggaaa	ggggtgcggg	gcagcggaag	gaagggtggg	gcggggcggtg	1620
gcgggggtctg	tggtctggcg	cgacgtcacc	gacgttgagg	ccactccttt	gaccatgtgt	1680
gcgtgtgtgt	attattcgtg	tctcgccact	cgccggttgt	ttttttcttt	ttatctcgct	1740
ctctctagcg	ccatctcgta	cgcattgcta	acgcaccgca	tgttgccgtg	tccttttatgc	1800
gtcatttttg	ctcgaaatat	gcaattattt	aaacaaagat	tagtcaacga	aaacgctaaa	1860
ataaataagt	ctacaatatg	gttacttatt	gccatgtgtg	tgacgccaac	gatagcaaca	1920
aaagcaacaa	cacagtggct	ttccctcttt	cactttttgt	ttgcaagcgc	gtgcgagcaa	1980
gacggcacga	ccggcaaacg	caattacgct	gacaaagagc	agacgaagtt	ttggccgaaa	2040
aacatcaagg	cgctgatac	gaatgcattt	gcaataacaa	ttgcgatatt	taatatgtgt	2100
tatgaagctg	tttgacttca	aaacacacaa	aaaaaaaat	aaaacaaatt	atttgaaaga	2160
gaattaggaa	tcggacagct	tatcgttacg	ggctaacagc	acaccgagac	gaaatagctt	2220
acctgacgtc	acagcctctg	gaagaactgc	cgccaagcag	acgatgcaga	ggacgacaca	2280
tagagtagcg	gagtaggcca	gcgtagtagc	catgtgcttg	tgtgtgaggc	gtctctctct	2340
tcgtctcctg	tttgcgcaaa	cgcatagact	gcactgagaa	aatcgattac	ctatttttta	2400

tgaatgaata	tttgactat	tactattcaa	aactattaag	atagcaatca	cattcaatag	2460
ccaaatacta	taccacctga	gcgatgcaac	gaaatgatca	atttgagcaa	aaatgctgca	2520
tatttaggac	ggcatcatta	tagaaatgct	tcttgctgtg	tactttttctc	tcgtctggca	2580
gctggttctgc	cgttattgtt	aaaaccggct	taagttaggt	gtgtttttcta	cgactagtga	2640
tgccccctact	agaagatgtg	tggtgcacaa	atgtccctga	ataaccaatt	tgaagtgcag	2700
atagcagtaa	acgtaagcta	atatgaatat	tatttaactg	taatgtttta	atatacgctgg	2760
acattactaa	taaacccact	ataaacacat	gtacatatgt	atgtttttggc	atacaatgag	2820
tagttgggga	aaaaatgtgt	aaaagcaccg	tgaccatcac	agcataaaga	taaccagctg	2880
aagtatcgaa	tatgagtaac	ccccaaattg	aatcacatgc	cgcaactgat	aggacccatg	2940
gaagtacact	cttcatggcg	atatacaaga	cacacacaag	cacgaacacc	cagttgcgga	3000
ggaaattctc	cgtaaattgaa	aacccaatcg	gcgaacaatt	cataccata	tatggtaaaa	3060
gttttgaacg	cgacttgaga	gcgagagca	ttgcggctga	taagggtttta	gcgctaagcg	3120
ggctttataa	aacgggctgc	gggaccagtt	ttcatatcgg	atcctatata	ataaaatggg	3180
tagttcttta	gacgatgagc	atatcctctc	tgctcttctg	caaagcgatg	acgagcttgt	3240
tggtgaggat	tctgacagtg	aaatatcaga	tcacgtaagt	gaagatgacg	tccagagcga	3300
tacagaagaa	gcgtttatag	atgaggtaca	tgaagtgcag	ccaacgtcaa	gcggtagtga	3360
aatattagac	gaacaaaatg	ttattgaaca	accaggttct	tcattggcctt	ctaacagaat	3420
cttgaccttg	ccacagagga	ctattagagg	taagaataaaa	cattgttggg	caacttcaaa	3480
gtccacgagg	cgtagccgag	tctctgcact	gaacattgtc	agatctcaaa	gaggtccgac	3540
gcgtatgtgc	cgcaatatat	atgacccact	tttatgcttc	aaactatttt	ttactgatga	3600
gataatttcg	gaaattgtaa	aatggacaaa	tgctgagata	tcattgaaac	gtcgggaatc	3660
tatgacagg	gctacatttc	gtgacacgaa	tgaagtga	atctatgctt	tcttttggtat	3720
tctggtaatg	acagcagtg	gaaaagataa	ccacatgtcc	acagatgacc	tctttgatcg	3780
atctttgtca	atgggtgtacg	tctctgtaat	gagtcgtgat	cgttttgatt	ttttgatagc	3840
atgtcttaga	atggatgaca	aaagtatacg	gcccacactt	cgagaaaacg	atgtatttac	3900
tcctgttaga	aaaatatggg	atctctttat	ccatcagtgc	atacaaaatt	acactccagg	3960
ggctcatttg	accatagatg	aacagttact	tggttttaga	ggacgggtgc	cgtttaggat	4020
gtatatccca	aacaagccaa	gtaagtatgg	aataaaaatc	ctcatgatgt	gtgacagtgg	4080
tacgaagtat	atgataaatg	gaatgcctta	tttgggaaga	ggaacacaga	ccaacggagt	4140
accactcggt	gaatactacg	tgaaggagtt	atcaaagcct	gtgcacggta	gttgctgtaa	4200
tattacgtgt	gacaattggg	tcacctcaat	ccctttggca	aaaaacttac	tacaagaacc	4260
gtataagtta	accattgtgg	gaaccgtgcg	atcaaaacaa	cgcgagatac	cggaaagtact	4320
gaaaaacagt	cgctccaggc	cagtgggaac	atcgatgttt	tgttttgacg	gaccccttac	4380
tctcgtctca	tataaaaccga	agccagctaa	gatggtatac	ttattatcat	cttggtatga	4440
ggatgcttct	atcaacgaaa	gtaccggtaa	accgcaaatg	gttatgtatt	ataatcaaac	4500
taaaggcgga	gtggacacgc	tagaccaaat	gtgttctgtg	atgacctgca	gtaggaagac	4560
gaatagggtg	cctatggcat	tattgtacgg	aatgataaac	attgcctgca	taaattcttt	4620
tattatatac	agccataatg	tcagtacgaa	gggagaaaag	gttcaaagtc	gcaaaaaatt	4680
tatgagaaac	ctttacatga	gcctgacgtc	atcggttatg	cgtaagcggt	tagaagctcc	4740
tactttgaag	agatattttg	gcgataatat	ctctaataat	ttgccaaatg	aagtgcctgg	4800
tacatcagat	gacagtactg	aagagccagt	aatgaaaaaa	cgtaacttact	gtacttactg	4860
cccctctaaa	ataaggcgaa	aggcaaatgc	atcgtgcaaa	aaatgcaaaa	aagttatattg	4920
tcgagagcat	aatattgata	tgtgccaaag	ttgtttctga	ctgactaata	agtataattt	4980
gtttctatta	tgtataagtt	aagctaatta	cttattttat	aatacaacat	gactgttttt	5040
aaagtacaaa	ataagtttat	ttttgtaaaa	gagagaatgt	ttaaaagttt	tgttacttta	5100
gaagaaattt	tgagtttttg	ttttttttta	ataaataaat	aaacataaat	aaattgtttg	5160
ttgaatttg	atccactagt	tctagagcgg	ccgccaccgc	ggtggagctc	cagcttttgt	5220
tccttttagt	gagggttaat	tgcgcgcttg	gcgtaatcat	ggtcatagct	gtttcctgtg	5280
tgaaattggt	atccgctcac	aattccacac	aacatacgag	ccggaagcat	aaagtgtaaa	5340
gcctgggggtg	cctaagtagt	gagctaactc	acattaattg	cgttgcgctc	actgccgct	5400
ttccagtcgg	gaaacctgtc	gtgccagctg	cattaatgaa	tcggccaacg	cgcggggaga	5460
ggcggtttgc	gtattgggcg	ctcttccgct	tcctcgctca	ctgactcgct	gcgctcggtc	5520
gttcggctgc	ggcgagcggg	atcagctcac	tcaaaggcgg	taatacgggt	atccacagaa	5580
tcaggggata	acgcaggaaa	gaacatgtga	gcaaaaggcc	agcaaaaggc	caggaaccgt	5640
aaaaaggccg	cgttgctggc	gtttttccat	aggctccgcc	ccctgacga	gcatacacia	5700
aatcgacgct	caagtcagag	gtggcgaaac	ccgacaggac	tataaagata	ccaggcgttt	5760
ccccctggaa	gtccctcgt	gcgctctcct	gttccgaccc	tgcgcttac	cggatacctg	5820
tccgcctttc	tccttccggg	aagcgtggcg	ctttctcata	gctcacgctg	taggtatctc	5880

```

agttcgggtg aggtcggtcg ctccaagctg ggctgtgtgc acgaaccccc cgttcagccc 5940
gaccgctgcg ccttatccgg taactatcgt cttgagtgca acccggttaag acacgactta 6000
tcgccactgg cagcagccac tggtaacagg attagcagag cgaggtatgt aggcgggtgct 6060
acagagtctt tgaagtgggt gcctaactac ggctacacta gaaggacagt atttgggtatc 6120
tgcgctctgc tgaagccagt taccttcgga aaaagagttg gtagctcttg atccggcaaa 6180
caaaccaccg ctggtagcgg tgggtttttt gtttgcaagc agcagattac gcgcagaaaa 6240
aaaggatctc aagaagatcc tttgatcttt tctacggggg ctgacgctca gtggaacgaa 6300
aactcacgtt aagggatctt ggtcatgaga ttatcaaaaa ggatcttcac ctagatcctt 6360
ttaaattaaa aatgaagttt taaatcaatc taaagtatat atgagtaaac ttgggtctgac 6420
agttaccaat gcttaatcag tgaggcacct atctcagcga tctgtctatt tcgttcattc 6480
atagttgcct gactccccgt cgtgtagata actacgatac gggagggtt accatctggc 6540
cccagtgctg caatgatacc gcgagacca cgctcacgg ctccagattt atcagcaata 6600
aaccagccag ccggaagggc cgagcgaga agtggtctct caactttatc cgcctccatc 6660
cagtcctatta attgttgccg ggaagctaga gtaagtagtt cgccagttaa tagtttgccg 6720
aacgttggtt ccattgctac aggcacgtg gtgtcacgct cgtcgttttg tatggcttca 6780
ttcagctccg gttcccaacg atcaaggcga gttacatgat cccccatgtt gtgcaaaaaa 6840
gcgggttagct ccttcgggtc tccgatcgtt gtcagaagta agttggccgc agtggttatca 6900
ctcatgggta tggcagcact gcataattct ctactgtca tgccatccgt aagatgcttt 6960
tctgtgactg gtgagtactc aaccaagtca ttctgagaat agtgtagcgc gcgaccgagt 7020
tgctcttgcc cggcgctcaat acgggataat accgcgccac atagcagaac tttaaaagt 7080
ctcatcattg gaaaacgttc ttcggggcga aaactctcaa ggatcttacc gctgttgaga 7140
tccagttcga tgtaaccac tctgtcaccc aactgatctt cagcatcttt tactttcacc 7200
agcgtttctg ggtgagcaaa aacaggaagg caaaatgccg caaaaaaggg aataagggcg 7260
acacggaaat gttgaatact catactcttc attattgaag catttatcag 7320
ggttattgtc tcatgagcgg atacatatctt gaatgtattt agaaaaataa acaaataggg 7380
gttcgcgcga catttccccg aaaagtgcga c

```

<210> 68

<211> 10330

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
pCaSpeR-hs-pBac sequence

<400> 68

```

aagcttgggc tgcaggctga cggatccaaa ttcaacaaac aattttattta tgtttattta 60
tttattaaaa aaaaacaaaa actcaaaatt tcttctaaag taacaaaact tttaaacatt 120
ctctctttta caaaaataaa cttatcttct actttaaaaa cagtcattgt gtattataaa 180
ataagtaatt agcttaactt atacataata gaaacaaatt atacttatta gtcagtcaga 240
aacaactttg gcacatatca atattatgct ctgcacaaat aacttttttg cattttttgc 300
acgatgcatt tgcctttcgc cttatcttag aggggcagta agtacagtaa gtacgttttt 360
tcattactgg ctcttcagta ctgtcatctg atgtaccagg cacttcattt ggcaaaatat 420
tagagatatt atcgcgcaaa tatctcttca aagtaggagc ttctaaacgc ttacgcataa 480
acgatgacgt caggctcatg taaagggttc tcataaatct tttgcgactt tgaacctttt 540
ctcccttgct actgacatta tggctgtata taataaaaga atttatgcag gcaatgttta 600
tcattccgta caataatgcc ataggccacc tattcgtctt cctactgcag gtcacacag 660
aacacatttg gtctagcgtg tccactccgc ctttagtttg attataatac ataaccattt 720
gcgggtttacc ggtactttcg ttgatagaag catcctcatc acaagatgat aataagtata 780
ccatcttagc tggcttcggg ttatatgaga cgagagtaag ggggtccgtc aaacaaaaca 840
tcgatgttcc cactggcctg gagcgactgt ttttcagtac ttccggtatc tcgcgtttgt 900
ttgatgcgac ggttcccaca atggttaact tatacggttc ttgtagtaag ttttttgcca 960
aagggattga ggtgaaccaa ttgtcacacg taatattacg acaactaccg tgcacaggct 1020
ttgataactc cttcacgtag tattcacgga tgggtactcc gttgggtctgt gttcctcttc 1080
ccaaataagg cattccattt atcatatact tctaccact gtcacacatc atgaggattt 1140
ttattccata cttacttggc ttgtttggga tatacatcct aaacggacac cgtcctctaa 1200

```

aaccaagtaa	ctgttcatct	atgggtcaaat	gagccctgg	agtgtaat	tgtatgcact	1260
gatggataaa	gagatcccat	atTTTTctaa	caggagtaaa	tacatcgttt	tctcgaagt	1320
tgggccgtat	acttttgtca	tccattctaa	gacatcgat	caaaaaatca	aaacgatcac	1380
gactcattac	agagacgtac	accattgaca	aagatcgatc	aaagagggtca	tctgtggaca	1440
tgtgggtatc	ttttctcact	gctgtcatta	ccagaatacc	aaagaaagca	tagatttcat	1500
cttcattcgt	gtcacgaaat	gtagcacctg	tcatagattc	ccgacgtttc	aatgatctct	1560
cagcatttgt	ccattttaca	atttccgaaa	ttatctcatc	agtataaaat	agtttgaagc	1620
ataaaaagtg	gtcatatata	ttgcggcaca	tacgcgtcgg	acctctttga	gatctgacaa	1680
tgttcagtcg	agagactcgg	ctacgcctcg	tggactttga	agttgaccaa	caatgtttat	1740
tcttacctct	aatagtcctc	tgtggcaagg	tcaagattct	gttagaagcc	aatgaagaac	1800
ctgggttgtt	aataacattt	tgttcgtcta	atatttcact	accgcttgac	gttggctgca	1860
cttcattgtac	ctcatctata	aacgcttctt	ctgtatcgct	ctggacgtca	tcttcactta	1920
cgtgatctga	tatttctact	tcagaatcct	caccaacaag	ctcgtcatcg	ctttgcagaa	1980
gagcagagag	gatatgctca	tcgtctaaag	aactacccat	tttattatat	aggatccccg	2040
acaccagacc	aactggtaat	ggtagcgacc	ggcgtcagc	tgggaattagg	ccttctagac	2100
cgcggccgca	gatctgttaa	cgaattccca	attccctatt	cagagttctc	ttcttgtatt	2160
caataattac	ttcttggcag	atttcagtag	ttgcagttga	tttacttggg	tgtgtgttac	2220
ttttaattga	ttcactttaa	cttgcacttt	actgcagatt	gttttagcttg	ttcagctgcg	2280
cttgttttatt	tgttagcttt	tcgcttagcg	acgtgttcac	ttgcttgttt	gaattgaatt	2340
gtcgtctcgt	agacgaagcg	ctctattttat	actccggcgc	tcttttcgcg	aacattcgag	2400
gcgcgtctct	tcgaaccaac	gagagcagta	tgccttttac	tgtgtgacag	agtgcagagag	2460
cattagtgtc	gagagggaga	cccaaaaaga	aaagagagaa	taacgaataa	cggccagaga	2520
aatttctcga	gttttcttct	gccaaacaaa	tgacctacca	caataaccag	tttgttttgg	2580
gattctaggg	ggatcgggga	tcaattctag	tatgtatgta	agttaataaa	accctttttt	2640
ggagaatgta	gatttaaaaa	aacatatttt	ttttttattt	tttactgcac	tggatatcat	2700
tgaacttate	tgatcagttt	taaaatttact	tcgatccaag	gggtatttgaa	gtaccaggtt	2760
ctttcgatta	cctctcactc	aaaatgacat	tccactcaaa	gtcagcgtcg	tttgccctct	2820
tctctgtcca	cagaaatate	gccgtctctt	tcgcgcgtgc	gtccgctatc	tctttcgcca	2880
ccgtttgtag	cgttacctag	cgtcaatgtc	cgcttctagt	tgcaacttgt	cagcggtttc	2940
gtgacgaagc	tccaagcggg	ttacgccatc	aattaaacac	aaagtgtctg	gccaaaactc	3000
ctctcgtctc	ttatttttgt	ttgttttttg	agtgtattgg	gtgggtgattg	gttttgggtg	3060
ggtaagcagg	ggaaaagtgt	aaaaatcccg	gcaatggggc	aagaggatca	ggagctatta	3120
attcgcggag	gcagcaaaaca	cccatctgcc	gagcatctga	acaatgtgag	tagtacatgt	3180
gcatacatct	taagttcact	tgatctatag	gaactgcgat	tgcaacatca	aattgtctgc	3240
ggcgtgagaa	ctgcgaccca	caaaaatccc	aaaccgcaat	cgcacaaaaca	aatagtgaca	3300
cgaacacagat	tattctggta	gctgtgctcg	ctatataaga	caatttttaa	gatcatatca	3360
tgatcaagac	atctaaaggc	attcattttt	gactacattc	ttttttacaa	aaaatataac	3420
aaccagatat	tttaagctga	tcctagatgc	acaaaaataa	aataaaaagta	taaacctact	3480
tcgtaggata	cttcgttttg	ttcgggggta	gtgagcata	acgcttgtag	ttgatatttg	3540
agatccccta	tcattgcagg	gtgacagcgg	agcggcttcg	cagagctgca	tttaaccagg	3600
cttcggggcag	gccaaaaact	acggcacgct	cctgccaccc	agtcgcgcgg	aggactccgg	3660
ttcaggggagc	ggccaactag	ccgagaacct	cacctatgcc	tggcacataa	tggacatctt	3720
tggggcggtc	aatcagccgg	gctccggatg	gcggcagctg	gtcaaccgga	cacgcggact	3780
attctgcaac	gagcgacaca	taccggcgcc	caggaaacat	ttgctcaaga	acggtgagtt	3840
tctattcgca	gtcggctgat	ctgtgtgaaa	tcttaataaa	gggtccaatt	accaatttga	3900
aactcagttt	gcggcgtggc	ctatccgggc	gaacttttgg	ccgtgatggg	cagttccggg	3960
gccggaaaga	cgacctgct	gaatgccctt	gcctttcgat	cgcgcgagg	catccaagta	4020
tcgccatccg	ggatgcgact	gctcaatggc	caacctgtgg	acgccaaagga	gatgcaggcc	4080
agggtgcgct	atgtccagca	ggatgacctc	tttatcggtc	ccctaaccggc	cagggaaacac	4140
ctgatttttcc	aggccatggt	gcggatgcca	cgacatctga	cctatcggca	gcgagtgggc	4200
cgcgtggatc	agggtgatcca	ggagctttcg	ctcagcaaat	gtcagcacac	gatcatcggt	4260
gtgccgggca	gggtgaaagg	tctgtccggc	ggagaaagga	agcgtctggc	attcgcctcc	4320
gaggcactaa	ccgatccgcc	gcttctgatc	tgcatgagc	ccacctccgg	actggactca	4380
tttacggccc	acagcgtcgt	ccaggtgctg	aagaagctgt	cgcagaagg	caagaccgtc	4440
atcctgacca	ttcatcagcc	gtcttccgag	ctgtttgagc	tctttgacaa	gatecttctg	4500
atggccgagg	gcagggtagc	tttcttgggc	actcccagcg	aagccgtcga	cttcttttcc	4560
tagtgagttc	gatgtgttta	tttaagggtat	ctagcattac	attacatctc	aactcctatc	4620
cagcgtgggt	gcccgatgtc	ctaccaacta	caatccggcg	gactttttacg	tacaggtgtt	4680

ggccgttggtg	cccgagcggtg	agatcgagtc	ccgtgatcg	atcgccaaga	tatgcgacaa	4740
ttttgctatt	agcaaagtag	cccgggatat	ggagcagttg	ttggccacca	aaaatttggga	4800
gaagccactg	gagcagcggtg	agaatgggtg	cacctacaag	gccacctggt	tcatgcagtt	4860
ccggggcggtc	ctgtggcgat	cctggctgtc	ggtgctcaag	gaaccactcc	tcgtaaaagt	4920
gcgacttatt	cagacaacgg	tgagtgggtc	cagtggaaac	aatgatata	acgcttaca	4980
ttcttggaaa	caaattcgct	agattttagt	tagaattgcc	tgattccaca	cccttcttag	5040
tttttttcaa	tgagatgtat	agtttatagt	tttgcagaaa	ataaataaat	ttcatttaac	5100
tcgcgaacat	gttgaagata	tgaatattaa	tgagatgcga	gtaacatttt	aatttgcaga	5160
tggttgccat	cttgattggc	ctcatctttt	tgggccaaca	actcacgcaa	gtgggcgtga	5220
tgaatatcaa	cggagccatc	ttcctcttcc	tgaccaacat	gacctttcaa	aacgtctttg	5280
ccacgataaa	tgtaagtctt	gtttagaata	catttgcata	ttaataattt	actaactttc	5340
taatgaatcg	attcgattta	ggtgttcacc	tcagagctgc	cagtttttat	gagggaggcc	5400
cgaagtgcac	tttatcgctg	tgacacatac	tttctgggca	aaacgattgc	cgaattaccg	5460
ctttttctca	cagtgccact	ggtcttcacg	gcgattgcct	atccgatgat	cggactgcgg	5520
gccggagtgc	tgactttctt	caactgcctg	gcgctggtca	ctctggtggc	caatgtgtca	5580
acgtccttcg	gatatctaata	atcctgcgct	agctcctcga	cctcgatggc	gctgtctgtg	5640
ggtccgctgg	ttatcatacc	attcctgtct	tttggcggtc	tcttcttgaa	ctcgggctcg	5700
gtgccagtat	acctcaaatg	gttgtcgtac	ctctcatggt	tcggttacgc	caacgagggg	5760
ctgctgatta	accaatgggc	ggacgtggag	ccgggcgaaa	ttagctgcac	atcgctgaac	5820
accacgtgcc	ccagttcggtg	caaggtcatc	ctggagacgc	ttaacttctc	cgccgcgat	5880
ctgccgctgg	actacgtggg	tctggccatt	ctcatcgtga	gcttccgggt	gctcgcatat	5940
ctggctctaa	gacttcgggc	ccgacgcaag	gagtagccga	catatatccg	aaataactgc	6000
ttgttttttt	ttttaccatt	attaccatcg	tgtttactgt	ttattgcccc	ctcaaaaagc	6060
taatgtaatt	atatttgtgc	caataaaaaac	aagatatgac	ctatagaata	caagtatttc	6120
cccttcgaac	atccccacaa	gtagactttg	gatttgtctt	ctaaccacaaa	gacttacaca	6180
cctgcatacc	ttacatcaaa	aactcgttta	tcgctacata	aaacaccggg	atataattttt	6240
tatacacata	cttttcaaat	cgcgcgccct	cttcataatt	cacctccacc	acaccacgtt	6300
tcgtagttgc	tctttcgctg	tctcccaccc	gctctccgca	acacattcac	cttttgttcg	6360
acgaccttgg	agcgactgtc	gttagttccg	cgcgattcgg	ttcgctcaaa	tggttccgag	6420
tggttccattt	cgtctcaata	gaaattagta	ataaatattt	gtatgtacaa	tttatttgct	6480
ccaatatatt	tgtatatatt	tccctcacag	ctataatttat	tctaatttaa	tattatgact	6540
ttttaaggta	attttttgtg	acctgttcgg	agtgattagc	gttacaattt	gaactgaaag	6600
tgacatccag	tggttgttcc	ttgtgtagat	gcatctcaaa	aaaatggtgg	gcataatagt	6660
gttgtttata	tatatcaaaa	ataagaacta	taataataag	aatacattta	atttagaaaa	6720
tgcttggtatt	tcactggaac	tagaattaat	tcggtgctg	ctctaaacga	cgcatttcgt	6780
actccaaagt	acgaattttt	tccctcaagc	tcttattttc	attaaacaat	gaacaggacc	6840
taacgcacag	tcacgttatt	gtttacataa	atgatttttt	ttactattca	aacttactct	6900
gtttgtgtac	tccactgggt	atagccttct	tttatctttt	ctgggttcagg	ctctatcact	6960
ttactaggta	cggcatctgc	gttgagtgcg	ctccttttaa	atgtctgacc	ttttgcaggt	7020
gcagccttcc	actgcgaatc	tttaaagtgg	gtatcacaaa	tttgggagtt	ttcaccaagg	7080
ctgcacccaa	ggctctgctc	ccacaatttt	ctcttaatag	cacacttcgg	cacgtgaatt	7140
aatttttactc	cagtcacagc	ttgcagcaaa	atttgcaata	tttcattttt	ttttattcca	7200
cgtaagggtt	aatgttttca	aaaaaaaaatt	cgcccgcaaa	caacctttcc	tctcaacaag	7260
caaacgtgca	ctgaatttaa	gtgtatactt	cggtaagctt	cggctatcga	cgggaccacc	7320
ttatgttatt	tcatcatggg	ccagaccac	gtagtccagc	ggcagatcgg	cggcgagaa	7380
gttaagcgtc	tccaggatga	ccttgcccga	actggggcac	gtggtgttcg	acgatgtgca	7440
gctaatttcg	ccgggtccca	cgtccgcccc	ttggttaaäc	agcagaccct	cgttggcgta	7500
acggaacct	gagaggtacg	acaaccattt	gaggtatact	ggcaccgagc	ccgagttcaa	7560
gaagaaggcg	tttttccata	ggctccgccc	ccctgacgag	catcacaaaa	atcgacgctc	7620
aagtcagagg	tggcgaaacc	cgacaggact	ataagataac	caggcgtttc	cccttgggaag	7680
ctccctcgtg	cgtctcctg	ttccgaccct	cgcgcttacc	ggataacctgt	ccgcctttct	7740
cccttcggga	agcgtggcgc	tttctcaatg	ctcacgctgt	aggtatctca	gttcggtgta	7800
ggtcgttcgc	tccaagctgg	gctgtgtgca	cgaaccccc	gttcagcccc	accgctgcgc	7860
cttatccggg	aactatcgtc	ttgagtccaa	cccggtaaga	cacgacttat	cgccactggc	7920
agcagccact	ggtaacagga	ttagcagagc	gaggtatgta	ggcgggtgcta	cagagttctt	7980
gaagtgggtg	cctaactacg	gctacactag	aaggacagta	tttggatatc	gcgctctgct	8040
gaagccagtt	accttcggaa	aaagagttgg	tagctcttga	tccggcaaac	aaaccaccgc	8100
tggtagcggg	ggtttttttg	tttgcagca	gcagattacg	cgcagaaaaa	aaggatctca	8160

```

agaagatcct ttgatctttt ctacggggtc tgacgctcag ttggaacgaaa actcacgtta 8220
agggattttt gtcattgagat tatcaaaaag gatcttcacc tagatccttt taaattaaaa 8280
atgaagtttt aaatcaatct aaagtatata tgagtaaact tggctcgaca gttaccaatg 8340
cttaatcagt gaggcaccta tctcagcgat ctgtctatct cgttcattcca tagttgcctg 8400
actccccgtc gtgtagataa ctacgatacg ggagggctta ccatctggcc ccagtgtctg 8460
aatgataccg cgagaccac gctcaccggc tccagattta tcagcaataa accagccagc 8520
cggaagggcc gagcgagaa gtggtcctgc aactttatcc gcctccatcc agtctattaa 8580
ttgttgccgg gaagctgagt aagtagttcg ccagttaata gtttgcgcaa cgttgttgcc 8640
attgctacag gcatcgtggt gtcacgctcg tcgttttgta tggcttcatt cagctccggg 8700
tcccaacgat caaggcgagt tacatgatcc ccatgttgt gcaaaaaagc ggttagctcc 8760
ttcggctctc cgatcgttgt cagaagtaag ttggccgcag tggtatcact catggttatg 8820
gcagcactgc ataattctct tactgtcatg ccatccgtaa gatgcttttc tgtgactggg 8880
gagtactcaa ccaagtcatt ctgagaatag tgtatgcggc gaccgagttg ctcttgcccg 8940
gcgtcaatac gggataatac cgcgccacat agcagaactt taaaagtgtc catcattgga 9000
aaacgttctt cggggcgaaa actctcaagg atcttaccgc tgttgagatc cagttcgatg 9060
taacccactc gtgcacccaa ctgatcttca gcatctttta ctttcaccag cgtttctggg 9120
tgagcaaaaa caggaaggca aaatgccgca aaaaagggaa taagggcgac acggaaatgt 9180
tgaatactca tactcttctt ttttcaatat tattgaagca tttatcaggg ttattgtctc 9240
atgagcggat acatatttga atgtatttag aaaaataaac aaataggggt tccgcgcaca 9300
ttccccgaa aagtgccacc tgacgtctaa gaaaccatta ttatcatgac attaacctat 9360
aaaaataggc gtatcacgag gccctttcgt ctgcgcggtt tcggtgatga cggtgaaaac 9420
ctctgacaca tgcagctccc ggagacggtc acagcttgtc tgtaagcgga tgccgggagc 9480
agacaagccc gtcagggcgc gtcagcgggt gttggcgggt gtcggggctg gcttaactat 9540
gcggcatcag agcagattgt actgagagtg caccatatgc ggtgtgaaat accgcaccga 9600
atcgcgcgga actaacgaca gtcgctccaa ggtcgtcgaa caaaagggtg atgtgttgcg 9660
gagagcgggt gggagacagc gaaagagcaa ctacgaaacg tgggtgtggtg gaggtgaatt 9720
atgaagaggg cgcgcgattt gaaaagtatg tatataaaaa atatatcccg gtgttttatg 9780
tagcgataaa cgagtttttg atgtaaggta tgcagggtgtg taagtctttt ggttagaaga 9840
caaataccaa gtctacttgt ggggatgttc gaaggggaaa tacttgatt ctataggtca 9900
tatcttgttt ttattggcac aaatataatt acattagctt tttgaggggg caataaacag 9960
taaacacgat ggtaataatg gtaaaaaaaa aaacaagcag ttatttcgga tatatgtcgg 10020
ctactccttg cgtcgggccc gaagtcttag agccagatat gcgagcacc ggaagctcac 10080
gatgagaatg gccagaccat gatgaaataa cataagggtg tcccgtcggc aagagacatc 10140
cacttaacgt atgcttgcaa taagtgcgag tgaaaggaat agtattctga gtgtcgtatt 10200
gagtcgtagt gagacagcga tatgattgtt gattaaccct tagcatgtcc gtggggtttg 10260
aattaactca taatattaat tagacgaaat tttttttaa gttttatttt taataatttg 10320
cgagtacgca                                     10330

```

<210> 69

<211> 1785

<212> DNA

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Natural piggyBac
orf sequence

<400> 69

```

atgggtagtt ctttagacga tgagcatatc ctctctgctc ttctgcaaag cgatgacgag 60
cttggttggtg aggattctga cagtgaataa tcagatcacg taagtgaaga tgacgtccag 120
agcgatacag aagaagcgtt tatagatgag gtacatgaag tgcagccaac gtcaagcggg 180
agtgaatat tagacgaaca aaatgttatt gaacaaccag gttcttcatt ggcttctaac 240
agaatcttga ccttgccaca gaggactatt agaggtaaga ataaacattg ttgggtcaact 300
tcaaagtcca cgaggcgtag ccgagtctct gcactgaaca ttgtcagatc tcaaagaggt 360
ccgacgcgta tgtgccgcaa tatatatgac ccacttttat gcttcaaact attttttact 420
gatgagataa tttcggaat tgtaaaatgg acaaagtctg agatatcatt gaaacgtcgg 480
gaatctatga caggtgctac atttcgtgac acgaatgaag atgaaatcta tgctttcttt 540

```

```

ggatttctgg taatgacagc agtgagaaaa gataaccaca tgtccacaga tgacctcttt 600
gatcgatctt tgtcaatggg gtacgtctct gtaatgagtc gtgatcgttt tgattttttg 660
atacgatgtc ttagaatgga tgacaaaagt atacggccca cacttcgaga aaacgatgta 720
tttactcctg ttgaaaaaat atgggatctc tttatccatc agtgcataca aaattacact 780
ccaggggctc atttgacccat agatgaacag ttacttgggt ttagaggacg gtgtccgttt 840
aggatgtata tcccaaacaa gccaaagtaag tatggaataa aaatcctcat gatgtgtgac 900
agtggtagca agtatatgat aaatggaatg ccttatttgg gaagaggaac acagaccaac 960
ggagtaccac tcggtgaata ctacgtgaag gagttatcaa agcctgtgca cggtagttgt 1020
cgtaatatata cgtgtgacaa ttggttcacc tcaatccctt tggcaaaaaa cttactacaa 1080
gaaccgtata agttaacccat tgtgggaacc gtgcatcaa acaaacgcga gataccgaa 1140
gtactgaaaa acagtcgctc caggccagtg ggaacatcga tgttttgttt tgacggaccc 1200
cttactctcg tctcatataa accgaagcca gctaagatgg tatacttatt atcatcttgt 1260
gatgaggatg cttctatcaa cgaaagtacc ggtaaacccg aaatggttat gtattataat 1320
caactaaag gcggagtga cacgctagac caaatgtgtt ctgtgatgac ctgcagtagg 1380
aagacgaata ggtggcctat ggcattattg tacggaatga taaacattgc ctgcataaat 1440
tcttttatta tatacagcca taatgtcagt agcaaggag aaaaggttca aagtcgcaaa 1500
aaatztatga gaaaccttta catgagcctg acgtcatcgt ttatgcgtaa gcgtttagaa 1560
gctcctactt tgaagagata tttgcgcgat aatatctcta atattttgcc aaatgaagt 1620
cctggtagcat cagatgacag tactgaagag ccagtaatga aaaaacgtac ttactgtact 1680
tactgccct ctaaaataag gcgaaaggca aatgcatcgt gcaaaaaatg caaaaaagtt 1740
atttgtcgag agcataatat tgatatgtgc caaagttgtt tctga 1785

```

<210> 70

<211> 1785

<212> DNA

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: Optimized
piggyBac orf sequence

<400> 70

```

atgggtagca gcctggatga tgaacatata ctgagcgcgc tgctgcagag cgacgacgaa 60
ctggttgggt aagatagcga cagcgaaatc agcgatcacg tgagcgaaga cgacgttcag 120
agcgataccg aagaagcgtt catcgacgaa gttcacgaag tgcagccgac cagcagcgg 180
agcgaaatcc tggatgaaca gaacgttatc gaacagccgg gtagcagcct ggcgagcaac 240
cgtatcctga ccctgccgca gcgcaccatc gcgctgaaca ttgttcgtag ccagcgtgg 360
agcaaaagca cccgccgtag ccgtgttagc ccgtgtgtgt gcttcaaact gttcttcacc 420
ccgacccgta tgtgccgcaa catctacgat ccgtgaaatgg accaacgcct gaaacgtcgc 480
gatgaaatca tcagcgaat cgtgaaatgg accaacgaag atgaaatcta cgccttcttc 540
gaaagcatga ccggcgcgac cttccgcgat accaacgaag tgagcaccga tgatctgttt 600
ggtatcctgg tgatgaccgc ggtgcgtaaa gataaccaca tgagcaccga tgatctgttt 660
gatcgtagcc tgagcatggg ttacgttagc gttatgagcc gtgaccgttt cgattttctg 660
atccgttgtc tgcgtatgga tgataaaagc atccgccgga ccctgcgcga aaacgatgtg 720
ttcaccgccg ttcgcaaaat ctgggatctg ttcattccacc agtgcacca gaactacacc 780
ccgggcgcgc acctgacct cgatgaacag ctgctgggtt ttcgtggctg ctgtccgttt 840
cgtatgtaca tcccgaacaa accgagcaaa tacggatatca aaatcctgat gatgtgtgac 900
agcggtagca agtacatgat caacggtagc ccgtatctgg gtcgtggtag ccagaccaac 960
ggtgtgccgc tgggtgaata ctacgtgaaa gaactgagca aaccgggtgca cggtagctgt 1020
cgtaacatca cctgtgacaa ctgggttcacc agcatcccgc tggcgaaaaa cctgctgcag 1080
gaaccgtata aactgacct cggtgggtacc gttcgtagca acaaacgtga aatcccgaa 1140
gtgctgaaaa acagccgtag ccgtccgggtg ggcaccagca tgttctgttt cgatgggtccg 1200
ctgaccctgg ttagctacaa accgaaaccg gcgaaaatgg tgtacctgct gagcagctgc 1260
gacgaagacg cgagcatcaa cgaaagcacc ggtaaaccgc agatggttat gtactacaac 1320
cagaccaaag gcggtgtgga caccctggat cagatgtgca gcgttatgac ctgcagccgc 1380
aaaaccaacc gctggccgat ggcgtgctg tacggtagta tcaacatcgc ctgcatcaac 1440
agctttatca tctacagcca taacgttagc agcaaaagtg aaaaagttca gagccgcaaa 1500

```


aaatttatgc	gtaacctgta	catgagcctg	accagcagct	tcatgcgtaa	acgtctggaa	1560
gccccgaccc	tgaaacgtta	tctgcgcgat	aacatcagca	acatcctgcc	gaacgaagtg	1620
ccgggtacca	gcgatgatag	caccgaagaa	ccggtgatga	aaaaacgtac	ctactgtacc	1680
tactgcccga	gcaaaatccg	ccgtaaagcg	aacgcgagct	gcaaaaaatg	caaaaaagtt	1740
atctgtcgtg	aacataacat	cgatatgtgc	cagagctggt	tctga		1785